

**County of Bruce
Highways
Department**

**GEOTECHNICAL ASSESSMENT REPORT
WEST ROAD**

BRYANT ST, HURON RD, HOWDENVALE RD,

DADDY WEIR RD AND WEST RD

TOWN OF SOUTH BRUCE PENINSULA AND

THE MUNICIPALITY OF NORTHERN BRUCE PENINSULA

**15-1068
December 2015**





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December 17, 2015
15-1068

County of Bruce Highways Department

30 Park Street, Box 70
Walkerton, ON
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Attention: Mr. Martin Campbell, CET

Regarding: Geotechnical Assessment for the West Road between Bruce Road 13 and Pike Bay Road, Town of South Bruce Peninsula and the Municipality of Northern Bruce Peninsula

Dear Mr. Campbell:

Please find enclosed our Geotechnical Report for the West Road between Bruce County Road 13 and Pike Bay Road in the Town of South Bruce Peninsula and the Municipality of Northern Bruce Peninsula.

This report outlines the results of the geotechnical investigation that was completed on the site and provides problem identification for targeted areas throughout the project site.

We trust the enclosed is adequate for your needs at this time. If there is anything further we can provide please contact us at your convenience.

Sincerely,
Tulloch Engineering Inc.

Jordan Black, P. Eng.
Project Manager

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1 Scope of Work

Tulloch Engineering (Tulloch) was retained by the County of Bruce – Highways Department to conduct a geotechnical investigation for a subsurface road investigation on the West Road between Bruce County Road 13 and Pike Bay Road. The project is approximately twenty two (22) kilometers in length and includes Bryant Street through Huron Road and Howdenvale Road and Daddy Weir Road within the Town of South Bruce Peninsula and the West Road in The Municipality of Northern Bruce Peninsula, Ontario. The purpose of the geotechnical investigation program was to evaluate the subsurface conditions and to provide problem identification and recommendations for road and pavement design. The County of Bruce is initiating a Class EA for the West Road to determine the best course of action for maintenance / rehabilitation or reconstruction. If it is determined that reconstruction of sections of the road is a preferred alternative, the platform would most likely consist of 3.35 m lanes with 1.52 m unpaved gravel shoulders.

Roadway drainage characteristics referenced throughout this report can be found in Figure 1 attached in Appendix A. Abbreviations, terminology and principal symbols commonly used throughout the report, are enclosed in Appendix B.

2 Investigations and Methodology

The geotechnical investigation program consisted of a drilling investigation that was supervised by Tulloch staff and included the following:

- Visual assessment of the roadway surface distresses;
- Visual assessment of existing drainage conditions;
- Subsurface investigation including boreholes investigation;
- Collecting soil samples, including standard penetration tests (SPTs)

2.1 Geotechnical Investigation

The geotechnical field investigation was completed from June 23rd to July 3rd, 2015. The investigation consisted of advancing 110 boreholes to 3 m depth with Standard Penetration Tests (SPTs) yielding soil samples from 0.91 m to 1.52 m, and 2.43 m to 3.05 m respectively. The boreholes were used to collect samples and determine base, subbase, and subgrade thicknesses. Asphalt, base

and subbase thicknesses were measured upon completion of each borehole and recorded on individual borehole logs.

The boreholes were advanced by a Geoprobe 7822DT drill rig equipped with an MC⁵ 1.25 in. single tube, continuous center rod push probe system and standard soil sampling equipment, which was owned and operated by CMT Engineering Inc.

Upon completion of the drilling program, the groundwater level was measured in each open borehole if encountered. The drilling and soil sampling was completed under the full time supervision of a Tulloch geotechnical representative. The recovered soil samples were sealed in plastic bags and carefully transported to CMT Engineering's lab for detailed examination and testing.

2.2 Soil Stratigraphy

Soil conditions encountered during the advancement of the boreholes are summarized and discussed below. Detailed results of the boreholes are illustrated on the enclosed borehole logs attached as Appendix C of this report. Classifications for soil samples were completed using the Unified Soil Classification System.

The boreholes at this site generally revealed pavement structure and soil stratigraphy consisting of:

- Asphalt
- Granular Base and Sub base
- Fine to Medium Sand (Subgrade)
- Bedrock (inferred from refusal)

Asphalt

Asphalt was encountered at the surface of boring locations from Bryant Road through to the intersection of Huron Road and Howendale Road. Thickness varied throughout, with ranges of 20 mm to 140 mm depending on the area being investigated.

Granular Base and Sub base

Granular base and sub base was encountered directly beneath asphalt and ranged from depths of 260 mm to 1060 mm depending on location and consisted of fine to medium grained sand with crushed rock and gravel.

Fine to Medium Sand (Subgrade)

The subgrade encountered in each borehole generally consisted of fine to medium sand with trace to some gravel.

Bedrock

Bedrock refusal was inferred from auger refusal at various locations throughout the site. Rock outcrops were also visible numerous locations along Daddy Weir Road and West Road. Site Plans showing borehole locations and borehole logs reflecting refusal depths can be found in Appendices A and C.

2.3 Laboratory Results

Grain size distribution testing was conducted on twenty (20) selected samples from the project site and moisture analysis was carried out for the base and subgrade materials in each borehole. Laboratory results are presented in Appendix D and are summarized on individual borehole logs in Appendix C.

2.4 Groundwater Conditions

The water level was measured in the open boreholes upon completion of drilling if encountered. See the borehole logs attached in Appendix C for water level references.

3 Geotechnical Design Considerations

3.1 Existing Conditions

The project is approximately twenty-two (22) kilometers in length and includes Bryant Street through Huron Road and Howdenvale Road and Daddy Weir Road within the Town of South Bruce Peninsula and the West Road in The Municipality of Northern Bruce Peninsula, Ontario. The existing roadway from Bryant Street to the intersection of Huron and Howdenvale Road consists of two (2) traffic lanes paved with asphalt and underlain with a Granular base and sub base. Existing road

conditions on Howdenvale Road through to West Road reflect two (2) traffic lanes that consist of an unpaved granular surface underlain by Granular base.

Annual Average Daily Traffic (AADT) information is available for this roadway for the year of 2012; traffic volumes at this location are expected to fluctuate between seasons due to tourism and travel in the summer months. Outside of the summer months, traffic volumes are typically reflective of more rural traffic areas. Generally, higher traffic volume has been recorded from July 2015 traffic counts, with averages of 2,299 vehicles per day over a one week span on West Road (Bryant Street) to lows of 136 averaged vehicles daily in less travelled sections of the project site along Howdenvale Road.

These averages are based on 2015 recordings over a five (5) day span. Wheel rutting was observed on paved surfaces from Bryant Street and Huron Road to the intersection of Howdenvale Road. Most stretches of paved surfaces are visibly distressed, with fatigue cracking present on both lanes. The wheel rutting is an indication of inadequate pavement structure, and can be caused by consolidation or lateral movement of the materials due to traffic loading, while the cracking is indicative of inadequate base/subbase and traffic loading or increased traffic volume. Common causes for these conditions include:

- Decrease in pavement load supporting characteristics from loss of base, subbase or subgrade support due to poor drainage or freeze-thaw cycles producing a less stiff base, resulting in loss of effective pavement thickness.
- Increase in loading and traffic volumes
- Inadequate structural design
- Poor construction (e.g., inadequate compaction)

Throughout the field investigation, Tulloch assessed existing drainage conditions and classified sections of the project site to reflect road areas that fell under the following categories:

- Poor drainage (no ditching or minimal ditching)
- Swampy, low lying areas
- Well drained areas

- Well drained sand over bedrock

The sections of the project site that fall under the above noted categories can be found in Figure 1.

With the exception of Daddy Weir Road and West Road where the majority of advanced boreholes revealed well drained sand over bedrock, the entire project site reflected soils that were saturated or had high moisture content. Particularly, swampy areas with chainage from 3+240 to 4+340 on Bryant Street and 12+080 to 12+320 on Howdenvale Road exhibited shallow water levels and relatively high moisture content in base and subgrade materials. Standing water was visible along the east and west bound lanes with no drainage or ditching. Throughout the majority of sections on Bryant Street, Huron Road and Howdenvale Road, water levels were shallow with little to no ditching present adjacent to the roadside.

Due to the low lying topographic nature of the project site combined with the lack of sustainable drainage systems, loss of base support due to moist to saturated conditions is a notable stress to surface pavement condition. As mentioned above, freeze-thaw cycles will be intensified if subsurface drainage is inadequate, leading to impacts on base stability and effective pavement thickness on road surfaces.

3.2 Pavement Design Recommendations

The Ministry of Transportation Routine (Empirical) Method of Pavement design utilizes tables that employ Granular Base Equivalencies (GBE) to the various pavement structure materials. The GBE equates the strength of the various pavement materials in terms of thickness. The Routine Method takes into consideration the sub grade material, the depth of granular base and sub base, the pavement thickness and the traffic volume.

The MTO Pavement Design and Rehabilitation Manual, Table 3.4, recommends a pavement structure thickness based on the following subgrade material with traffic counts between 2000 – 3000 AADT and unpaved. The majority of site has a sand subbase with less than 40 % through the 5-75 um sieve. The MTO Pavement design thickness chart recommends a pavement structure thickness of at least 90 mm asphalt, 150 mm of granular base and 300 mm of granular sub-base for traffic counts from 2000 and 3000 AADT, producing a target GBE of 530. The recommendation based on the County Standard is 100 mm asphalt, 150 mm of granular base and 450 mm of granular sub-

base, which exceeds the MTO recommendations and provides a target GBE of 550. A target GBE of 550 will be used for this project.

To obtain the optimum upgrade strategy it is necessary to assign a GBE to the existing pavement structure, the in-situ GBEs have been estimated from the borehole data using the following equivalency factors for resurfacing projects (Based on Table 3.5 of the MTO Design Manual).

Table 2. Granular Base Equivalency Factors

Materials	Equivalency Factors
Asphalt	2.0
Granular "A"	1.0
Granular "B" in Subbase	0.67
Full Depth Reclamation (FDR)	1.0

The GBE values were calculated at each borehole location and can be found in on the Borehole summary sheet found in Appendix C. It is difficult to determine the difference between the granular base/subbase and therefore all GBE values have been calculated using 0.67 for the base/subbase. It should also be noted that calculating accurate GBE "The thickness designs presented in these tables assume that granular base is constructed across the full width of the cross-section, shoulder is constructed of granular materials with or without a paved surface, and drainage of the roadbed is adequate." as stated in the MTO Pavement Design manual.

3.2.1 Rehabilitation of Existing Pavement

Where the proposed road alignment and profile are to remain, consideration was given to rehabilitating the existing pavement in order to salvage the existing road base and subbase material. Three (3) main rehabilitation scenarios were considered based on existing road conditions.

3.2.1.1 Full Depth Reclamation

Bryant Street (Sta. 0+000 to Sta. 11+315.43)

Where asphalt is present on Bryant Street, the GBE value of the existing road does not meet requirements due to the lack of granular material and lack of ditching, with the average GBE value reading of 479. To achieve a GBE of 550 it is recommended to:

- In-Place process the existing asphalt and penetrate into the underlying granular base for a depth of 150 mm
- Properly grade and pulverize material
- Ensure of proper ditching exist
- Place 150 mm of OPSS Granular A
- Place 100 mm of HL3

The above pavement structure will produce an average GBE value of 627 which exceeds the County's requirements.

3.2.1.2 Asphalt Overlay

Howdenvale Road (Sta. 11+315.43) to Pike Bay Road (Sta. 21+660)

Where there is no existing asphalt the GBE of the existing road does not meet requirements due to the lack of granular material and asphalt, with the average GBE value reading of 440. To achieve a GBE of 550 it is recommended to:

- Use Granular A and Granular B Type II to complete any localized repairs
- Ensure of proper ditching exist
- Place 100 mm of HL3

The above pavement structure will produce an average GBE value of 640 which exceeds the County's requirements.

3.2.1.3 Swampy Low Lying Areas

Bryant Street (Sta. 3+240 to Sta. 4+340 on) and Howdenvale Road (Sta. 12+080 to Sta. 12+320)

In the swampy poorly-drained areas, the GBE of the existing road does not meet requirements due to the lack of granular material, ditching and asphalt, with the average GBE value reading of 516. To achieve a GBE of 550 it is recommended to:

- In-Place process the existing asphalt and penetrate into the underlying granular base for a depth of 150 mm
- Place triaxial geogrid TX (160) or equivalent
- Ensure of proper ditching exist
- Place 150 mm of OPSS Granular A
- Place 100 mm of HL3

3.3 Drainage

As stated in section 3.1 above the entire project site reflected soils that were saturated or had high moisture content. Particularly, swampy areas with chainage from 3+240 to 4+340 on Bryant Road and 12+080 to 12+320 on Howdenvale Road exhibited shallow water levels and relatively high moisture content in base and subgrade materials. Standing water was visible along the east and west bound lanes with no drainage or ditching. Throughout the majority of sections on Bryant Street, Huron Road and Howdenvale Road, water levels were shallow with little to no ditching present adjacent to the roadside.

Proper ditching is required to insure the drainage of the subbase and subgrade materials. OPSD 201.010, 200.010 and any other standards applicable should be followed to provide suitable drainage of the subgrade material. The following drainage improvements can be considered for the project:

- Ditch Cleanouts
- Geodetic Ditching
- Rock Ditching
- Line Drilling

Geodetic ditching should be considered in any area where the existing ditches are of insufficient depth to drain the subgrade.

3.4 Reconstruction of Shoulders

It is our understanding that some of the existing shoulder widths will be increased and some shoulder areas will be reconstructed. Shoulder granular thickness should be equivalent to that of the adjacent roadway to ensure proper drainage. Where the existing pavement thickness is unknown, the recommended pavement structure for the shoulders is as follows:

- 100 mm New Hot Mix Asphalt
- 150 mm New Granular A Base
- 450 mm New Granular B Subbase

If the shoulders are left to be unpaved the Granular A base can be increased by 100 mm.

3.5 Groundwater during Excavation

Seepage control requirements during construction will depend upon the area of work on the site, the depth of the excavations, the time of year, the amount of precipitation and the control of surface water. As required, seepage should generally be adequately controlled using conventional construction dewatering techniques such as pumping from sump pits. However, if heavy seepage occurs, it may be necessary to increase the number of pumps during construction. It is the responsibility of the contractor to propose a suitable dewatering system based on the groundwater elevation at the time of construction. All collected water should discharge a sufficient distance away from the excavation to prevent re-entry. Sediment control measures should be installed at the discharge point of the dewatering system.

Seasonal variations in the water table should be expected, with higher levels occurring during wet weather conditions in the spring and fall and lower levels occurring during the normal dry weather conditions.

3.6 Culvert Design

It is understood the existing culvert may be replaced and or added throughout the project site. It is recommended that the culverts (and associated embedment material/bedding) be founded on compacted Granular "A". Frost tapers should be constructed in accordance with OPSD 803.030 or 803.031, depending on the depth of culvert embedment.

Pipe bedding material should consist of a minimum of 150 mm of either sand cushion or crushed Granular 'A' conforming to O.P.S.S. standards for Class 'B' bedding. The bedding should be extended up to the spring line of the pipe and compacted in place to a value of not less than 95 percent of Standard Proctor Dry Density. For pipes larger than 450 mm diameter, bedding material should be increased to a minimum thickness of $D/3$ where D is the inside diameter of the service pipe (Refer to OPSD 802.031). In no case shall this dimension be less than 150 mm or greater than 300 mm. Approximately 300 mm of granular cover should also be placed over the pipes before final backfilling takes place.

Trench backfill should consist of approved select native excavated material, placed to the underside of the road granular sub-base and compacted to a value of not less than 95 percent of Standard Proctor Density after pipe bedding and cover has been placed. This should be completed in order to

minimize differential movement between the parent soil and other types of backfill material, such as granular materials.

The pipe culvert cut-end finish, end sections and safety slope end treatments should be specified by the civil designer. Compaction of the pipe embedment material and backfill must be undertaken in accordance with OPSS 501. As per OPSD 802.014, the pipe bed is to be compacted and shaped to receive the bottom of the pipe. Granular material placed in the haunch area is to be compacted prior to placing the remainder of the embedment material. The diameter or the span and rise of flexible pipes is not to vary from the manufactured dimensions by more than 5% during cover and backfilling operations. Embedment material must be placed in uniform layers not exceeding 200 mm in thickness (loose measurement) and be compacted utilizing light hand operated compaction equipment. Pipe embedment material must be placed simultaneously on each side of the pipe and at no time should the levels on each side of the pipe differ by more than the uncompacted 200 mm lift thickness. Pipe embedment material placement and compaction should be in accordance with the pipe manufacturer's installation specifications.

Approved backfill material is to be placed in maximum 300 mm loose lift thickness, uniformly across the trench and must be compacted to a minimum 95% SPMDD up to the subgrade elevation. Backfill material is to be placed to a minimum depth of 900 mm above the crown of the pipe (or as specified by the pipe manufacturer) before power operated rolling compaction equipment is utilized for compacting. All excavations must be carried out in accordance with Ontario Regulation 213/91 of the Occupational Health and Safety Act and Regulations for Construction Projects.

3.7 Soil Erodibility

The soil erodibility as determined by the Wischmeier Nomograph has K factors ranging from 0.4 to 0.19. Given existing ditch grades as well as, the amount of runoff from spring melt and rainfall amounts in the area, it is recommended that rip rap, overlying a class 2 non-woven geotextile be installed at the replacement inlet and outlet for the culvert. The rip rap should be in accordance with OPSS 1004, meeting the requirements of Table 7 and Table 8.

3.8 Frost Protection

The estimated frost penetration depth at the site is estimated at 1.5 m. Culverts should use frost tapers as recommended in the applicable OPSD.

3.9 Environmental

During construction it is recommended that the use of light duty silt fence barriers in accordance with OPSD 219.110 and light duty straw bale barriers in accordance with OPSD 219.100 be installed prior to ditching and culvert installations.

It is recommended that turbidity curtains be installed for culvert replacement, in accordance with OPSD 219.260 and 219.261. Permanent rock flow check dams should be installed in ditches, where soil erodibility and grades warrant their usage.

4 Closure

We have prepared this report for the exclusive use of the County of Bruce – Highways Department and their authorized agents for the development of the road rehabilitation and/or reconstruction.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practises in the field of geotechnical engineering, for the above noted location. Classification and identification of soils, and geologic units have been based upon commonly accepted methods employed in professional geotechnical practice. No warranty or other conditions, expressed or implied, should be understood.

Please refer to Appendix E, Report Limitations and Guidelines for Use, which pertains to this report. We trust that the information and recommendations in this report will be found to be complete and adequate for your consideration. Should further elaboration be required for any portion of this project, we would be pleased to provide assistance.



Respectfully submitted,

Jordan Black, P. Eng.
Geotechnical Engineer

Sarah Debortoli
Geoscientist in Training

Appendix A

Roadway Drainage Characteristics and Site Reference Plan



Legend
Road Classification

- Class**
- Poor Drainage
 - Well Drained Sand Over Bedrock
 - Swampy, Low Lying
 - Well Drained Area
 - ★ Culvert
 - ▨ Wetland

Notes:

Background base map produced by
ESRI Base Maps, 2012.



0 2 4 Kilometers

Datum: NAD83
Projection: NAD83 Zone 17N



Bruce County Subsurface Investigation:
Bruce Road 13 to Pike Bay Road

Road Classification

Project 15-1068

Figure 1

SCALE: 1:100,000

DATE: July 2015

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THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

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NO.	REVISION	BY	DATE

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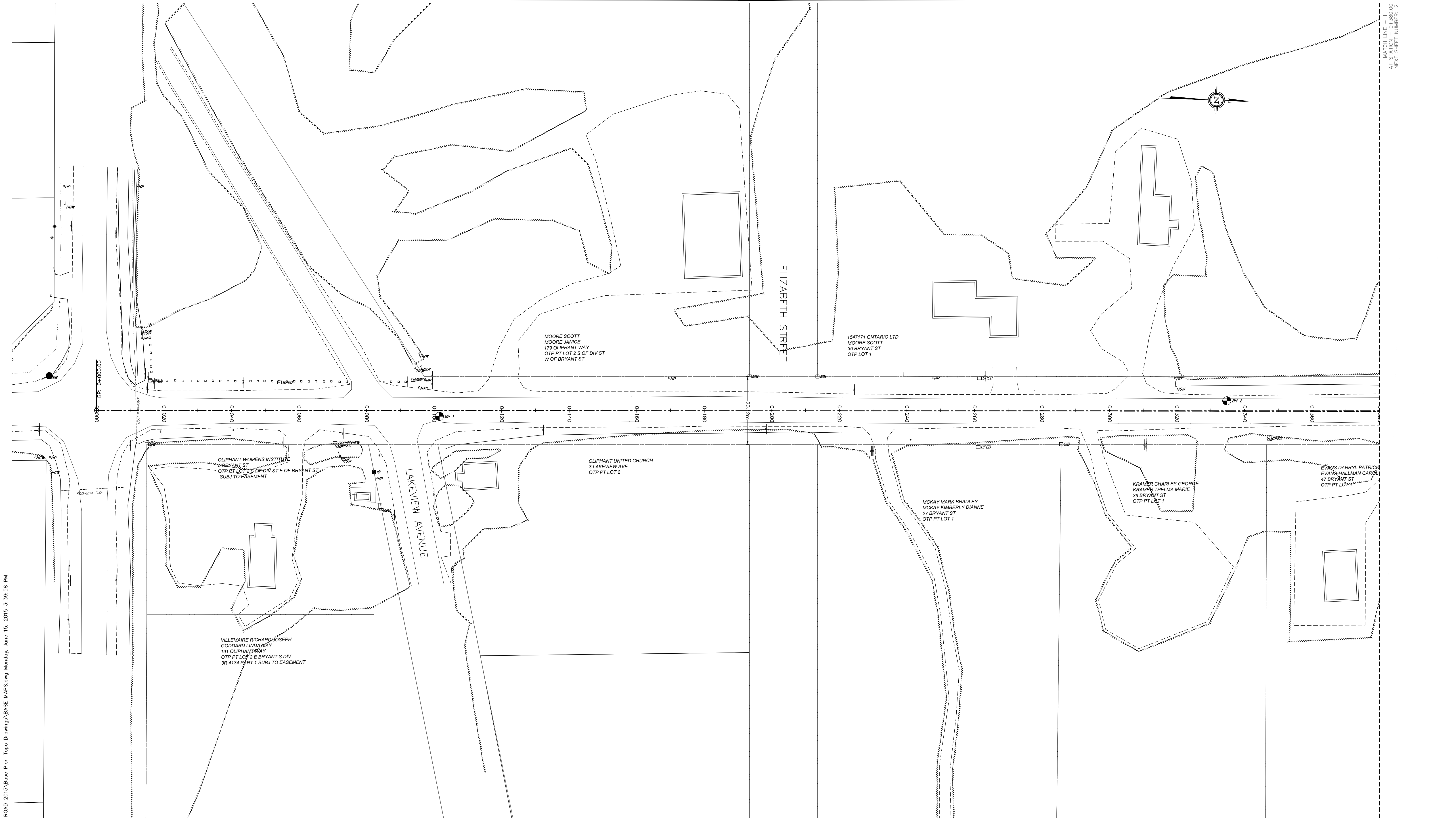
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BRUCE COUNTY
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30 PARK STREET, WALKERTON ON N0C 2V0
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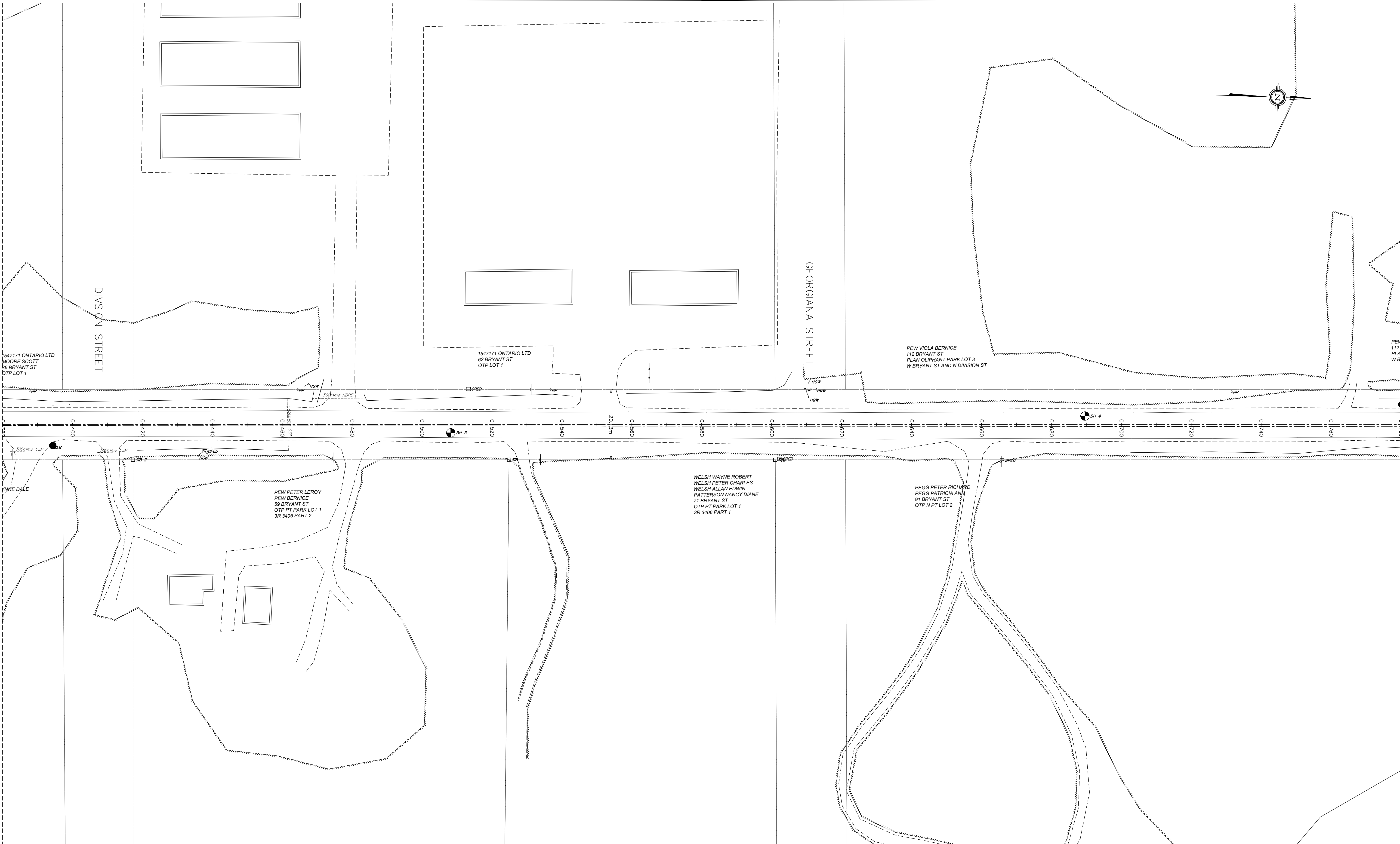
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WATERMANS, SEWERS AND OTHER UNDERGROUND
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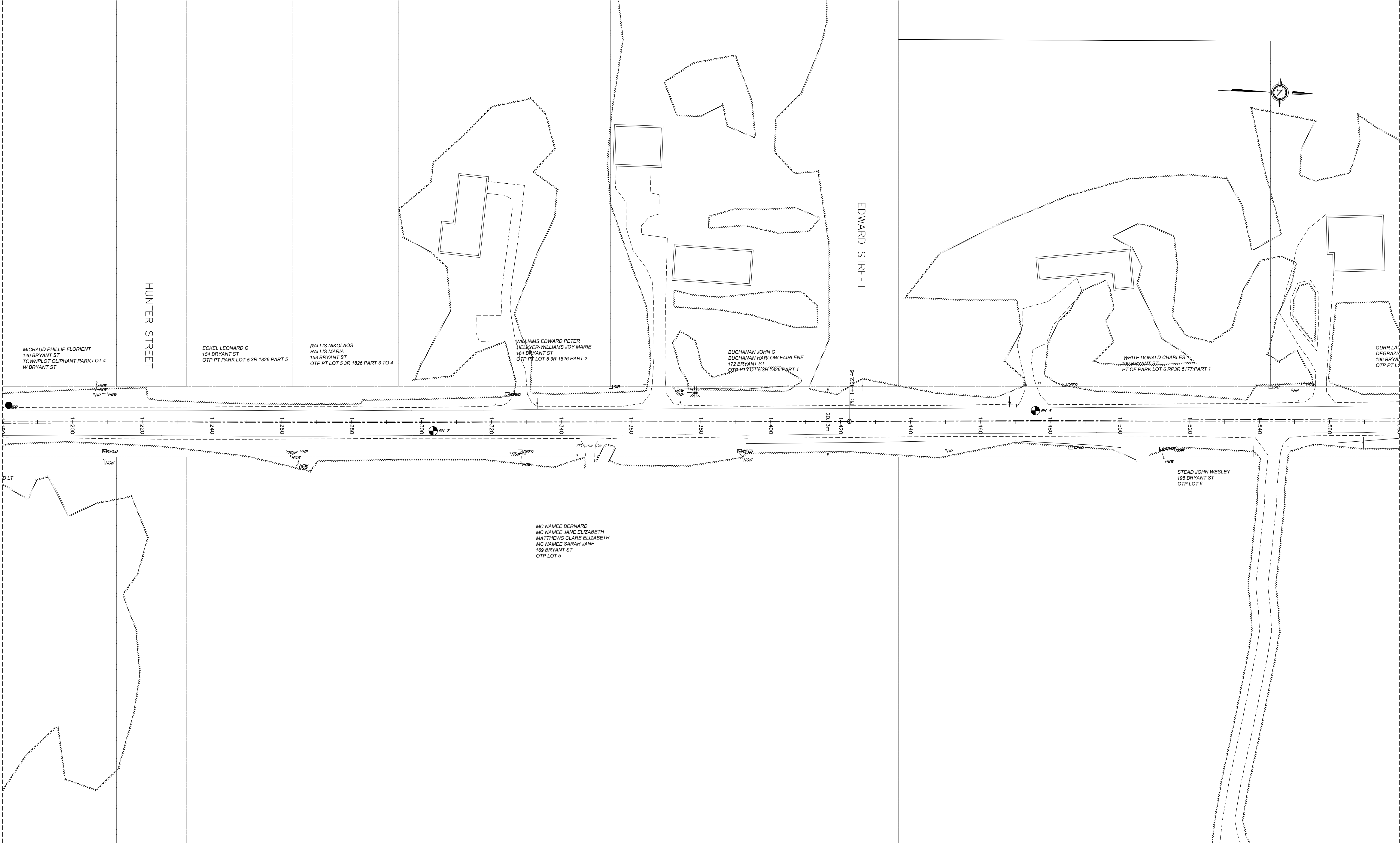
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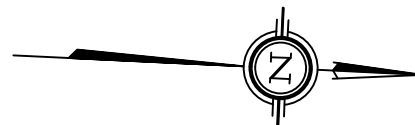
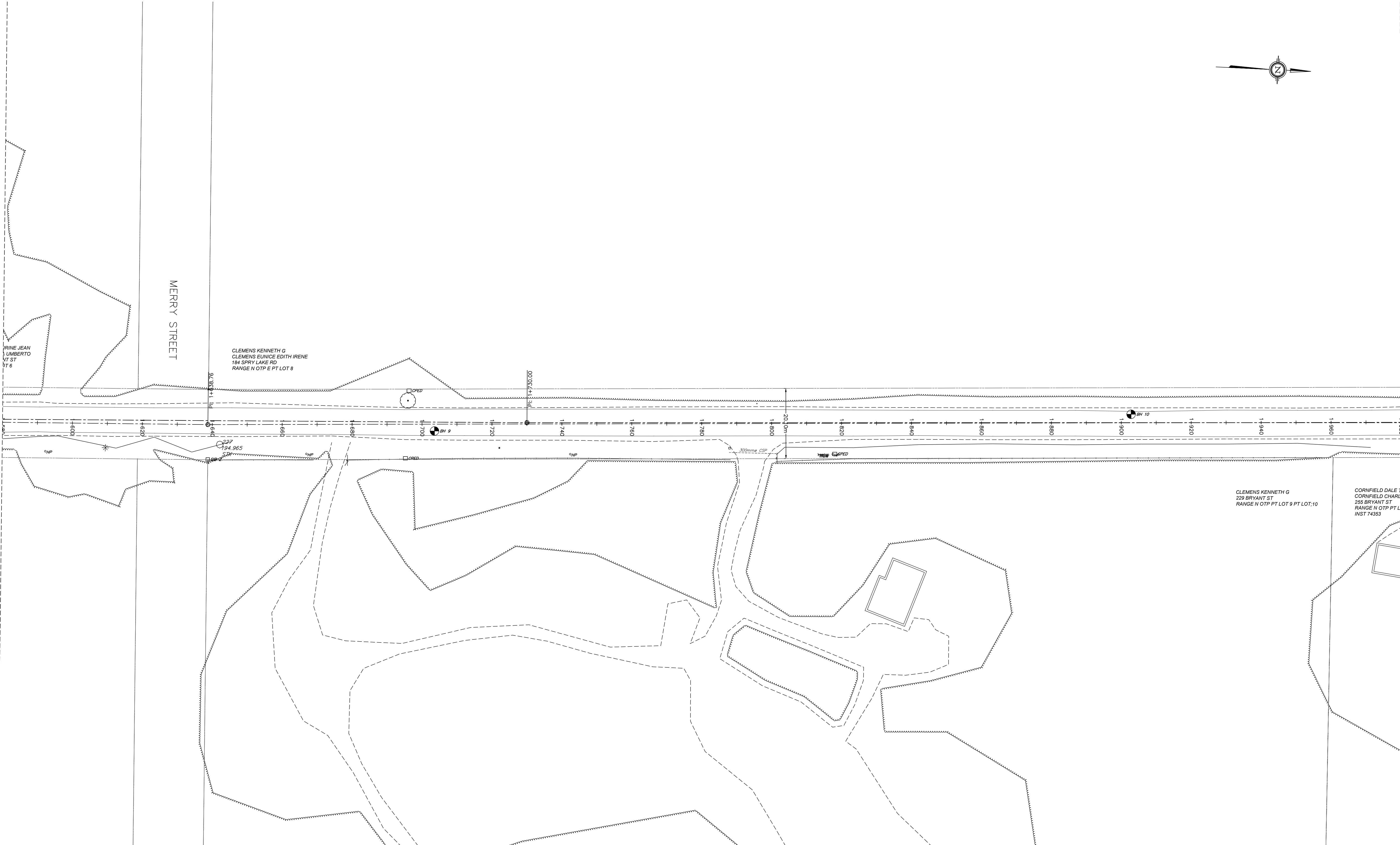


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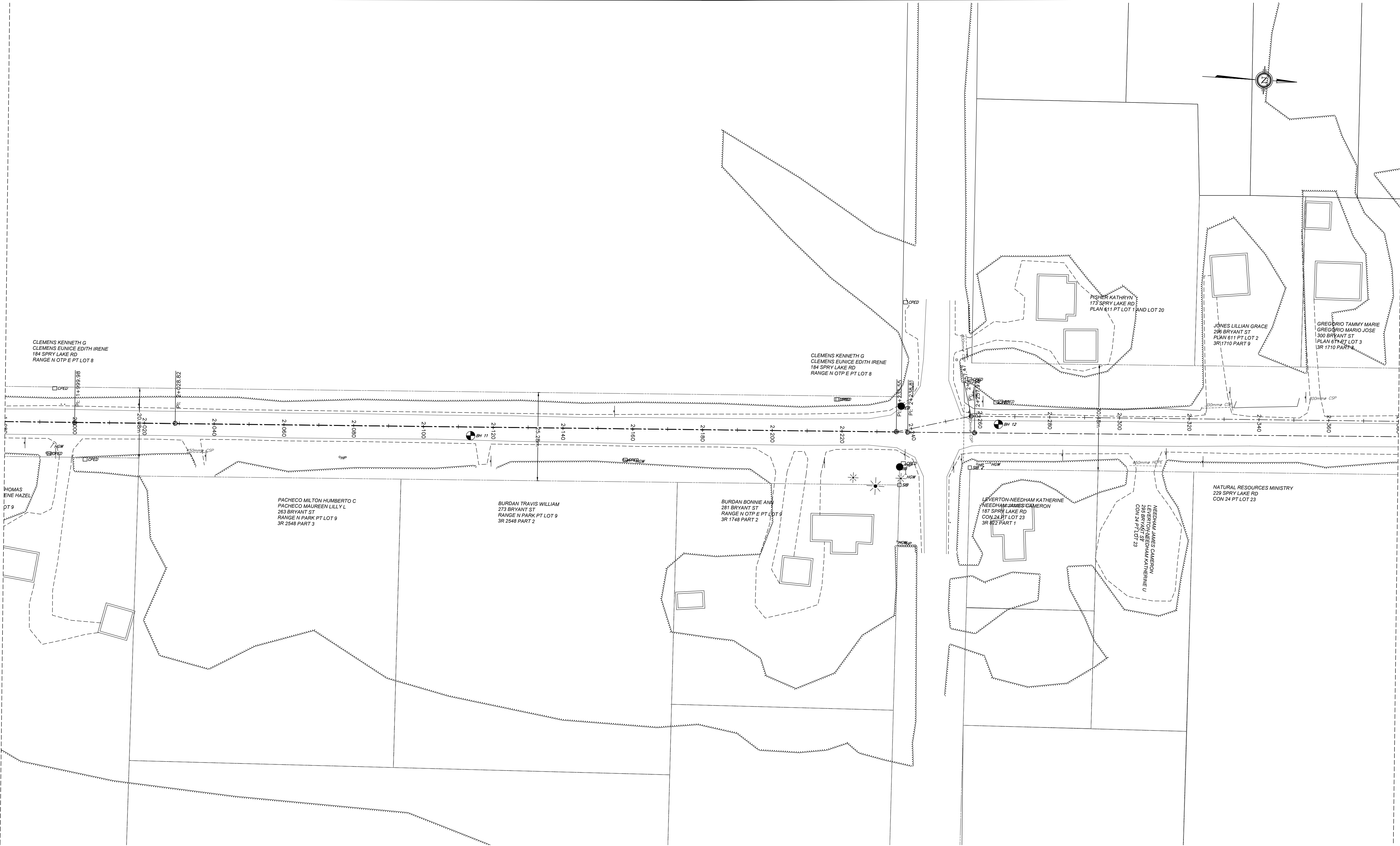
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AT STATION 2+380.00
NEXT SHEET NUMBER 6

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 1 + 980 TO STA. 2 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

0

DRWC NO.

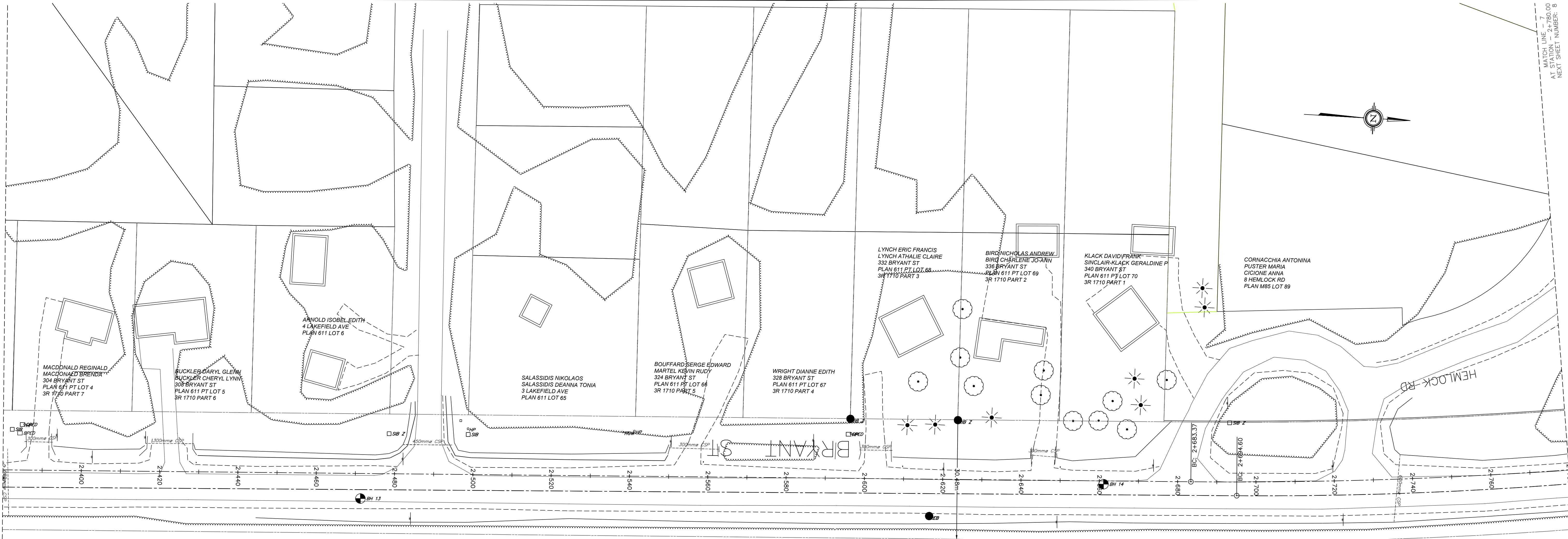
6 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 6
AT STATION 2+380.00
PREVIOUS SHEET NUMBER 6



NATURAL RESOURCES MINISTRY
229 SPRY LAKE RD
CON 24 PT LOT 23

MATCH LINE - 7
AT STATION 2+780.00
NEXT SHEET NUMBER 8

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 2 + 380 TO STA. 2 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

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DRWG NO.

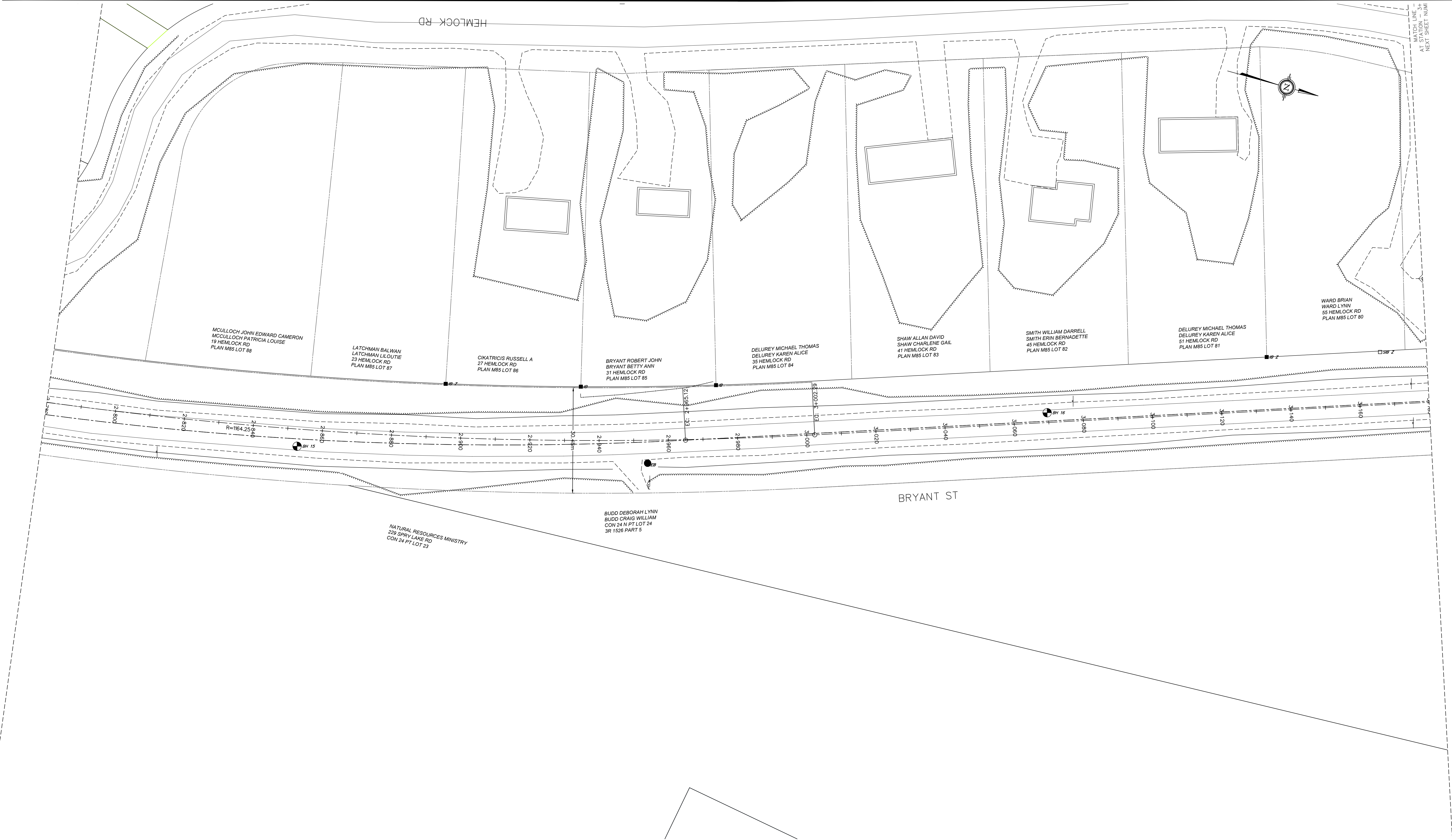
7 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

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THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 2 + 780 TO STA. 3 + 180

SCALE: H 1:500

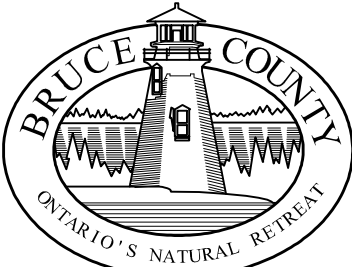
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REVISION

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DRWG NO.

8 of 55

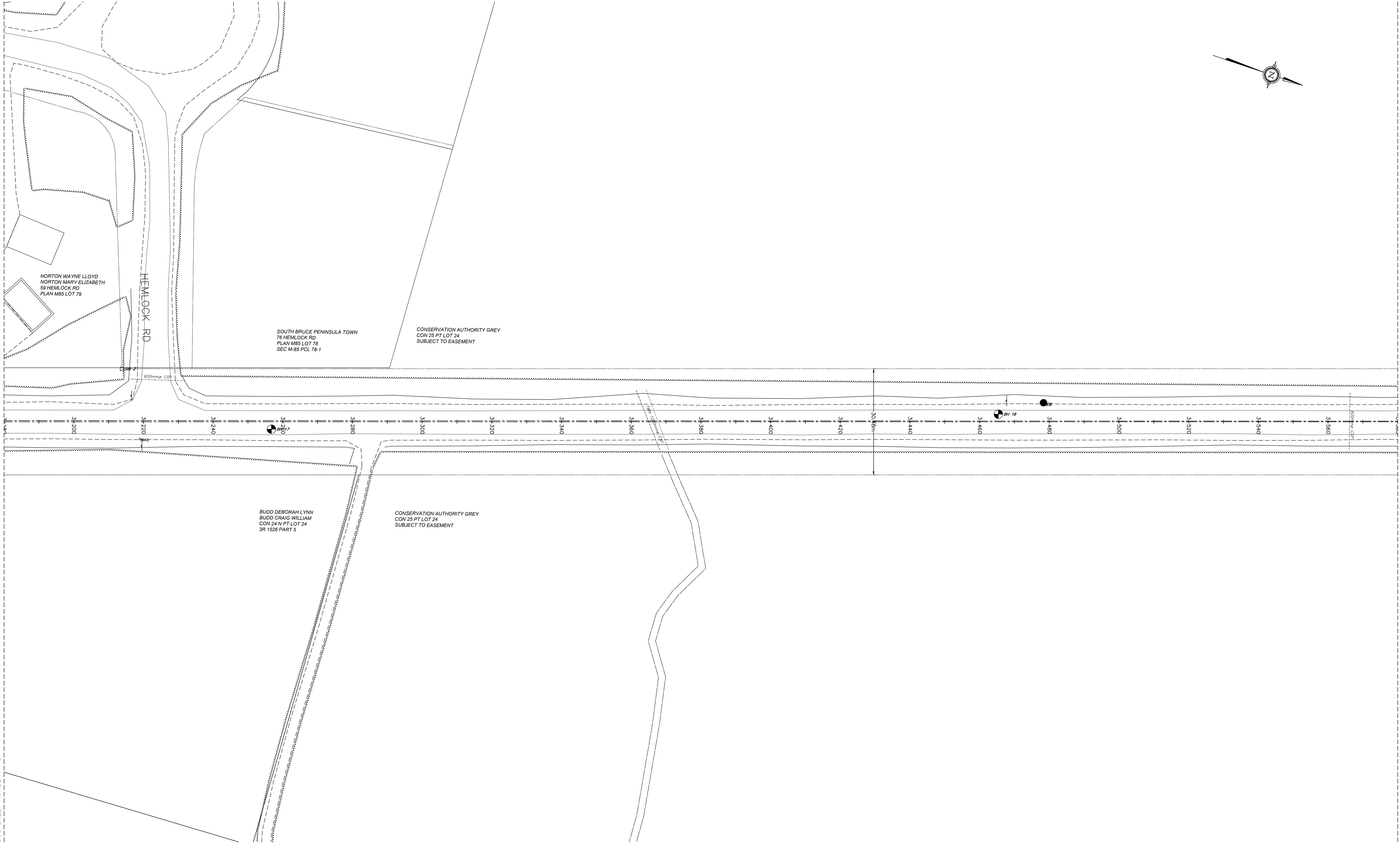


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MATCH LINE - 8
STATION - 3+180.00
OUS SHEET NUMBER - 8



MATCH LINE - 9
AT STATION - 3+580.00
NEXT SHEET NUMBER: 10

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 3 + 180 TO STA. 3 + 580

SCALE: H 1:500

DRAWN BY: MC

REVISION

0

DRWG NO.

9 of 55

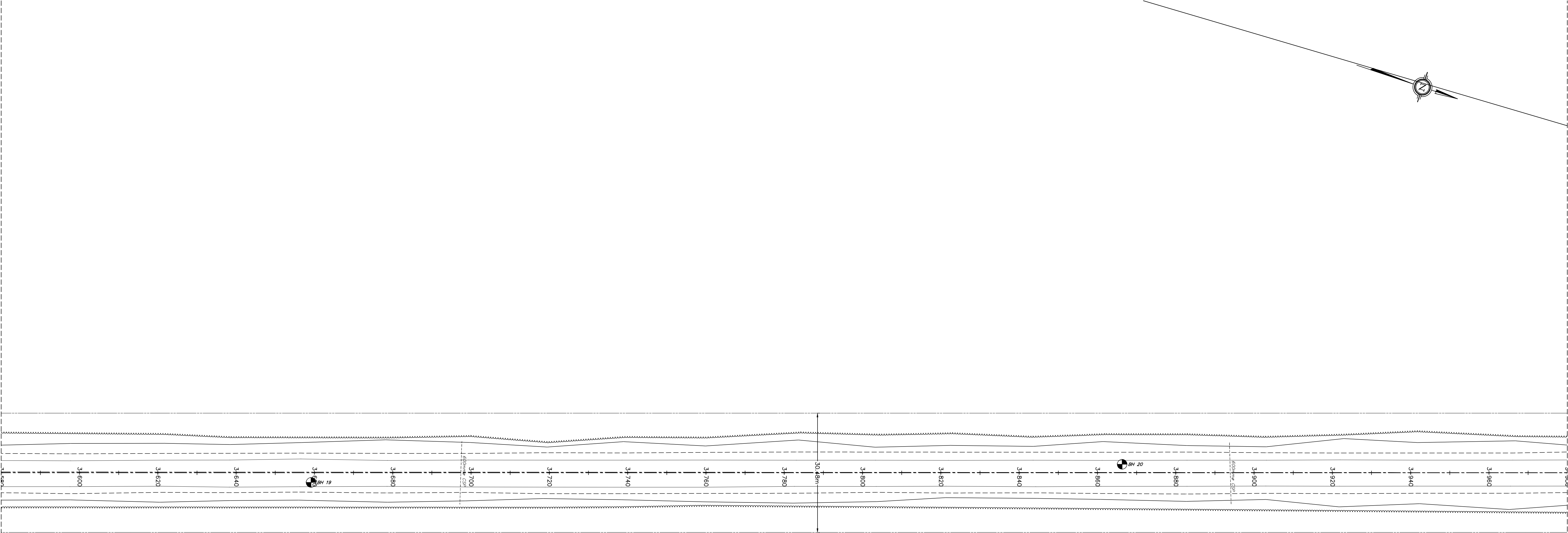


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TEL: (519) 881-2400 FAX: (519) 881-1619
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MATCH LINE - 9
AT STATION - 3+580.00
PREVIOUS SHEET NUMBER - 9

MATCH LINE - 10
AT STATION - 3+980.00
NEXT SHEET NUMBER: 11



BRYANT ST

CONSERVATION AUTHORITY GREY
CON 25 FT LOT 24
SUBJECT TO EASEMENT

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 3 + 580 TO STA. 3 + 980

SCALE: H 1:500

DRAWN BY: MC

REVISION

0 10 of 55

DRWG NO.

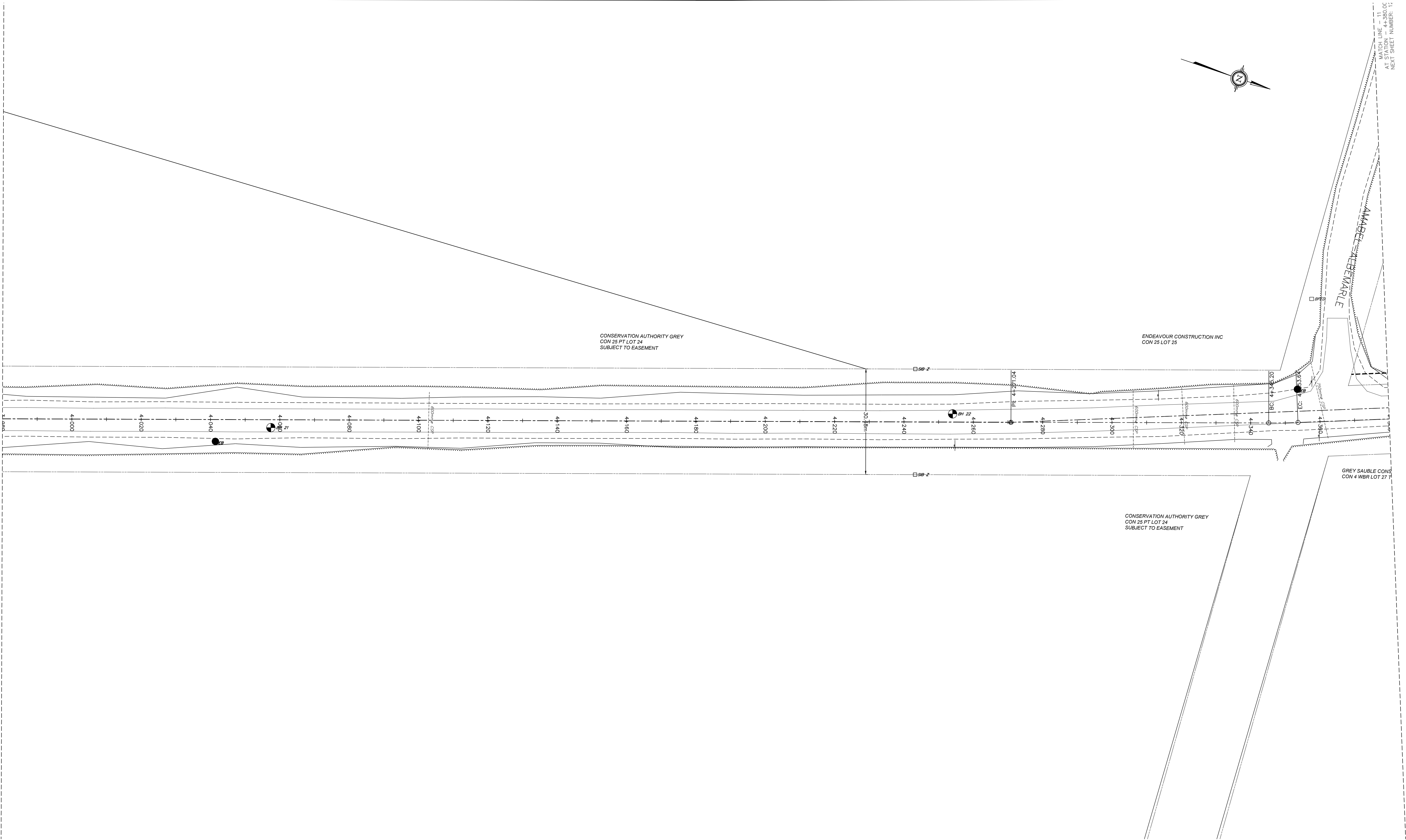


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J:\WEST ROAD 2015\Bases Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:45:21 PM

MATCH LINE - 10
AT STATION - 3+980.00
PREVIOUS SHEET NUMBER - 10



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 3 + 980 TO STA. 4 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 11 of 55

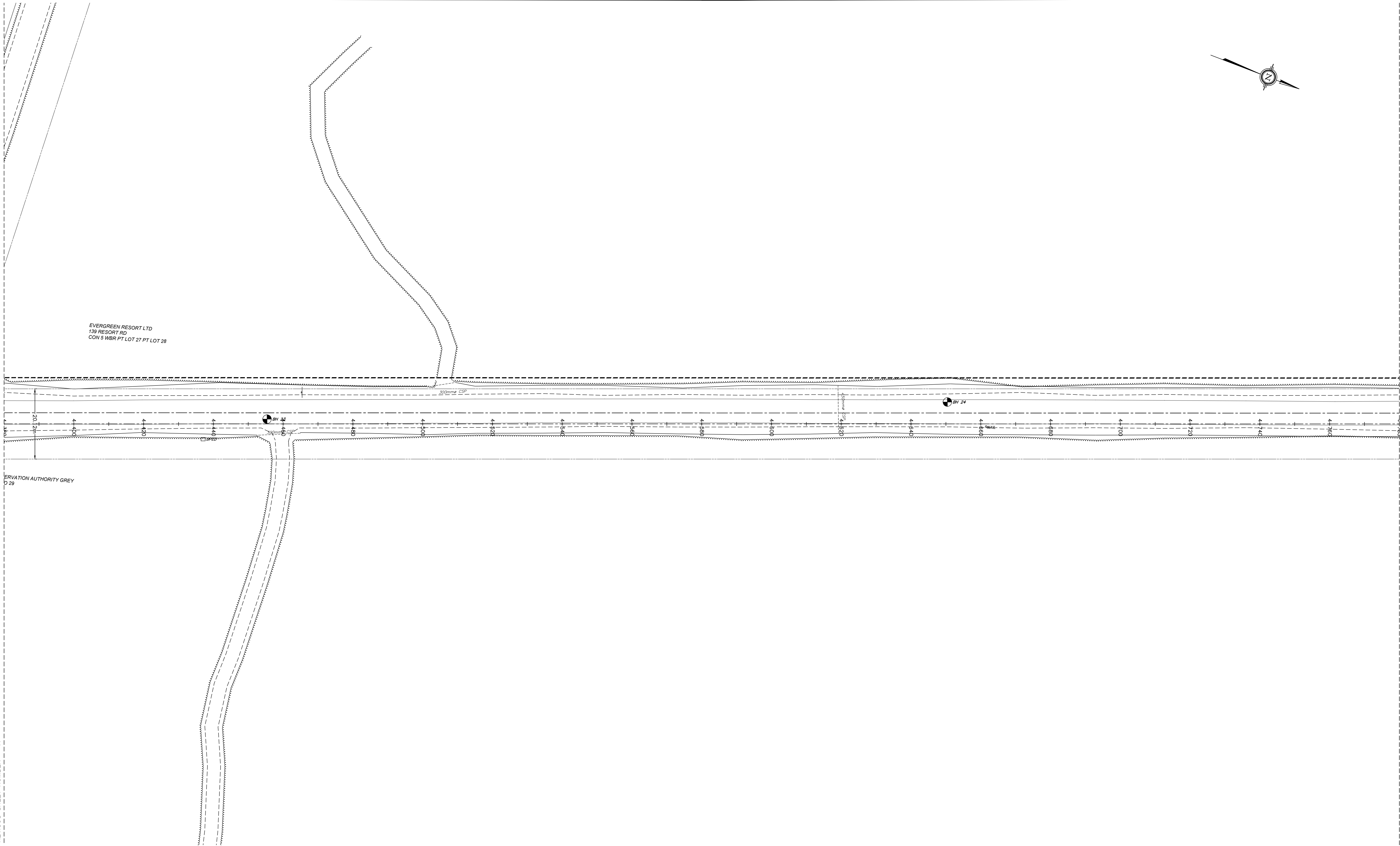


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MATCH LINE - 11
AT STATION - 4+380.00
PREVIOUS SHEET NUMBER - 11



MATCH LINE - 12
AT STATION - 4+780.00
NEXT SHEET NUMBER: 13

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 4 + 380 TO STA. 4 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWC NO.

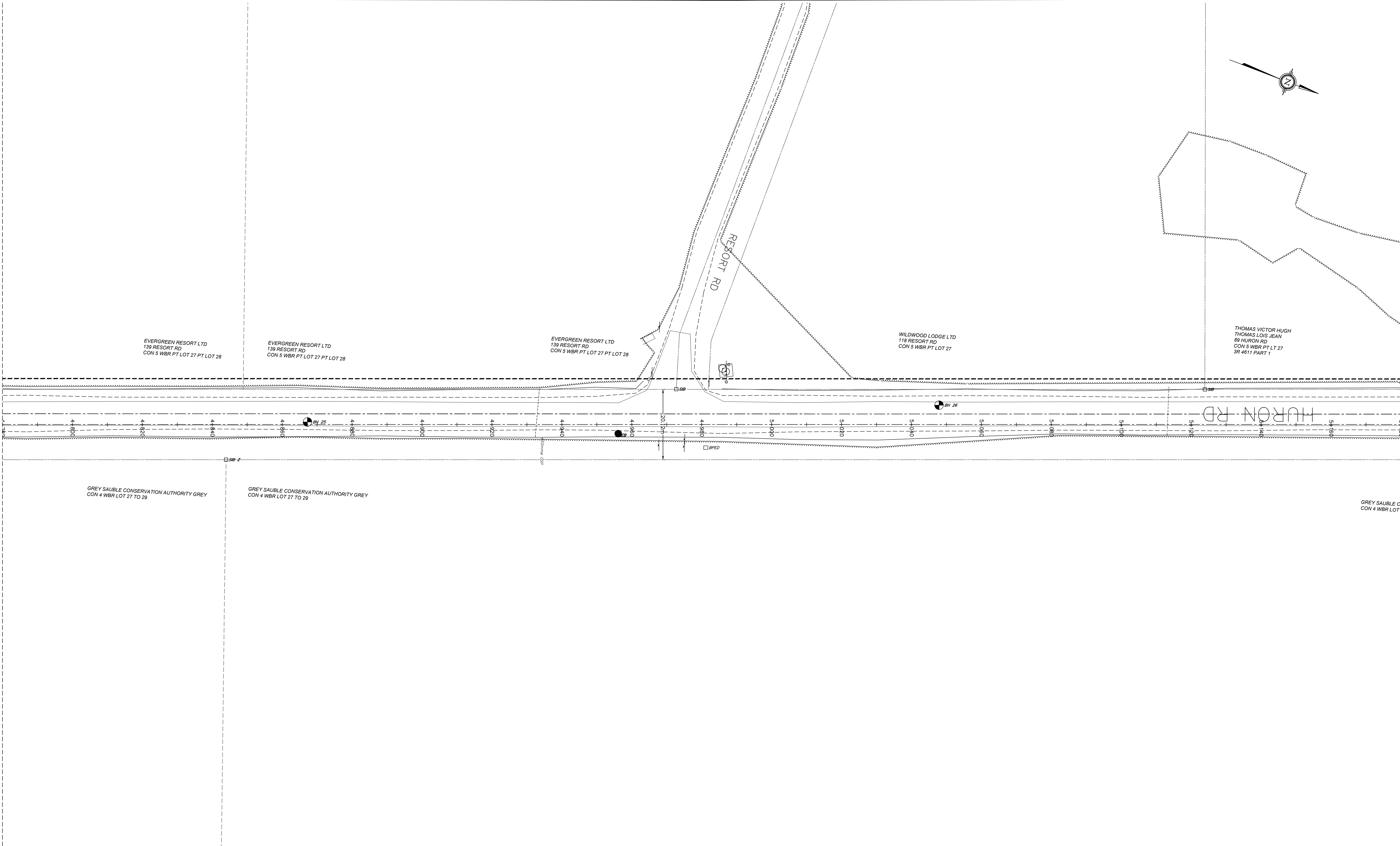
0 12 of 55



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HIGHWAYS DEPARTMENT

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MATCH LINE - 12
AT STATION - 4+780.00
PREVIOUS SHEET NUMBER - 12



MATCH LINE - 13
AT STATION - 5+180.00
NEXT SHEET NUMBER: 14

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 4 + 780 TO STA. 5 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 13 of 55

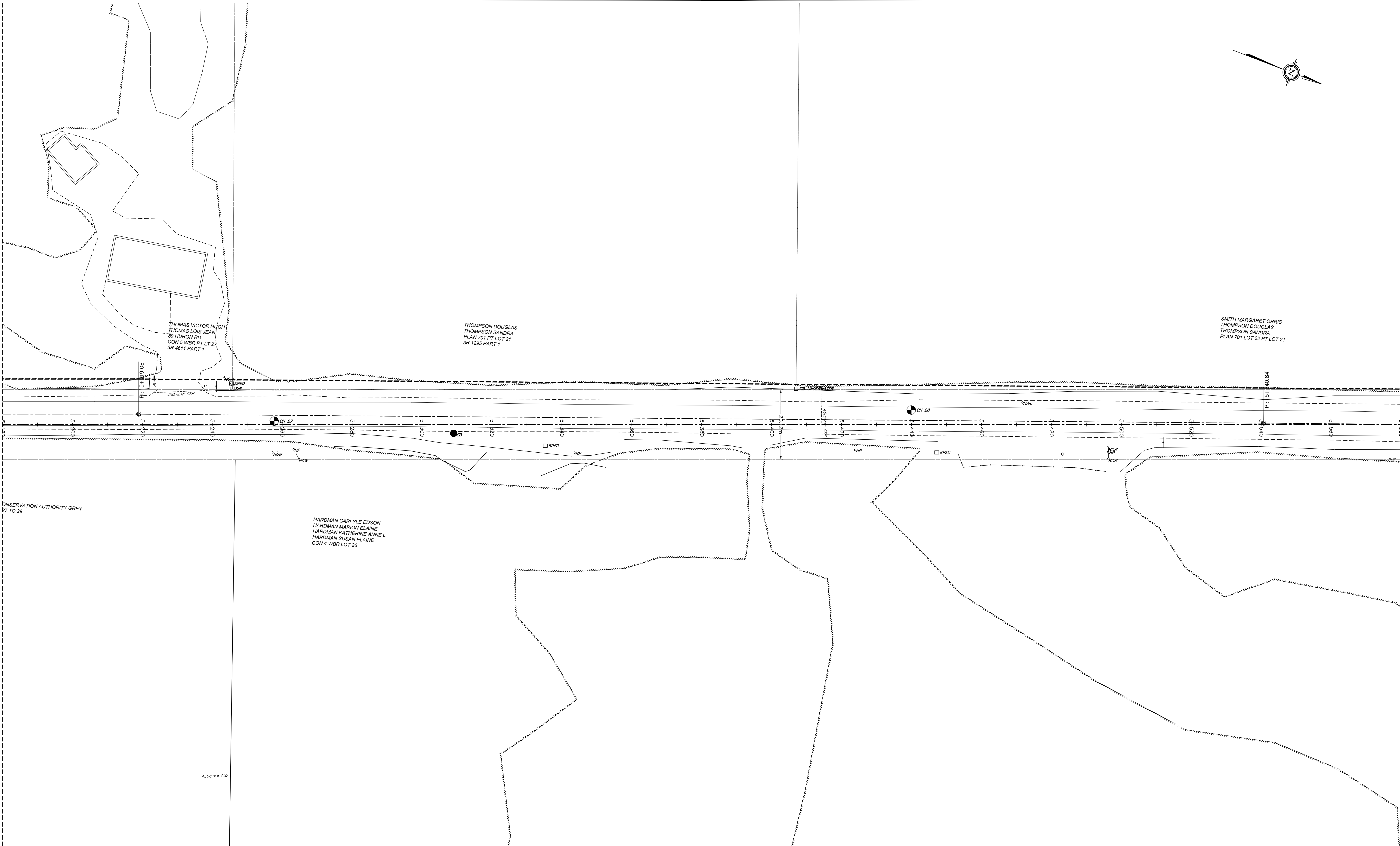


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MATCH LINE - 13
AT STATION - 5+180.00
PREVIOUS SHEET NUMBER - 13



MATCH LINE - 14
AT STATION - 5+580.00
NEXT SHEET NUMBER: 15

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 5 + 180 TO STA. 5 + 580

SCALE: H 1:500

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REVISION

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BRUCE COUNTY
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MATCH LINE - 14
AT STATION - 5+580.00
PREVIOUS SHEET NUMBER - 14

THE POSITION OF POLE LINES, CONDUITS,
WATERMAINS, SEWERS AND OTHER UNDERGROUND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 5 + 580 TO STA. 5 + 980

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 15 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

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MATCH LINE - 15
AT STATION 5+980.00
NEXT SHEET NUMBER: 16

J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:48:00 PM

MATCH LINE - 15
AT STATION - 5+980.00
PREVIOUS SHEET NUMBER - 15

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
AND ABOVE GROUND SERVICES ARE NOT
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 5 + 980 TO STA. 6 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWC NO.

0 16 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

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MATCH LINE - 16
AT STATION - 6+380.00
NEXT SHEET NUMBER: 17

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MATCH LINE - 16
AT STATION - 6+380.00
PREVIOUS SHEET NUMBER - 16

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
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THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

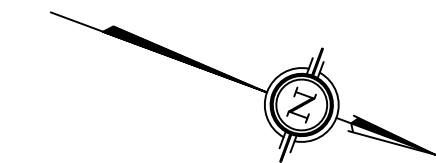
TITLE: STA. 6 + 380 TO STA. 6 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

0 17 of 55



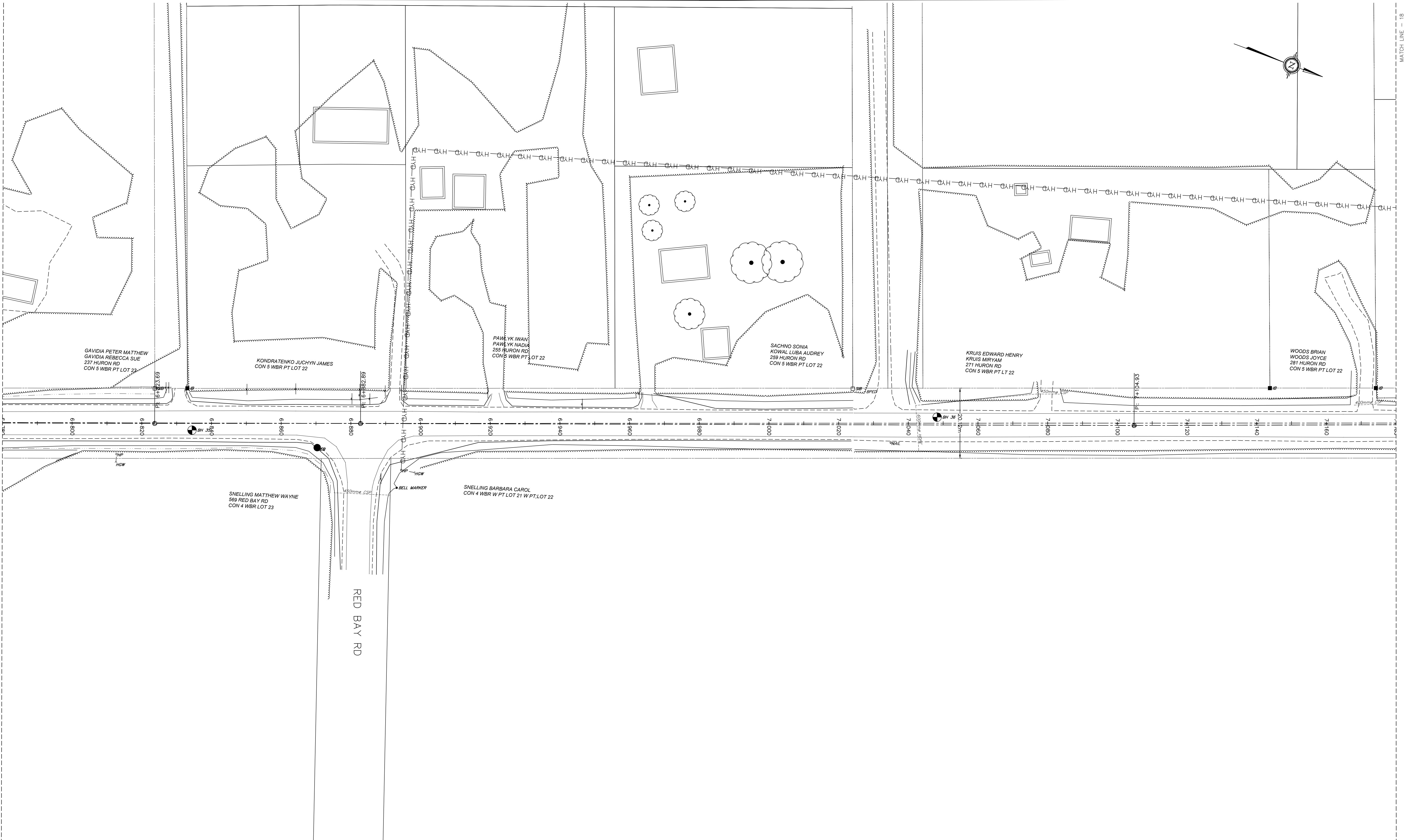
MATCH LINE - 17
AT STATION - 6+780.00
NEXT SHEET NUMBER: 18



BRUCE COUNTY
HIGHWAYS DEPARTMENT

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MATCH LINE - 17
AT STATION - 6+780.00
PREVIOUS SHEET NUMBER - 17



THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
MO.	DESCRIPTION	BV.	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 6 + 780 TO STA. 1 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

0 18 of 55

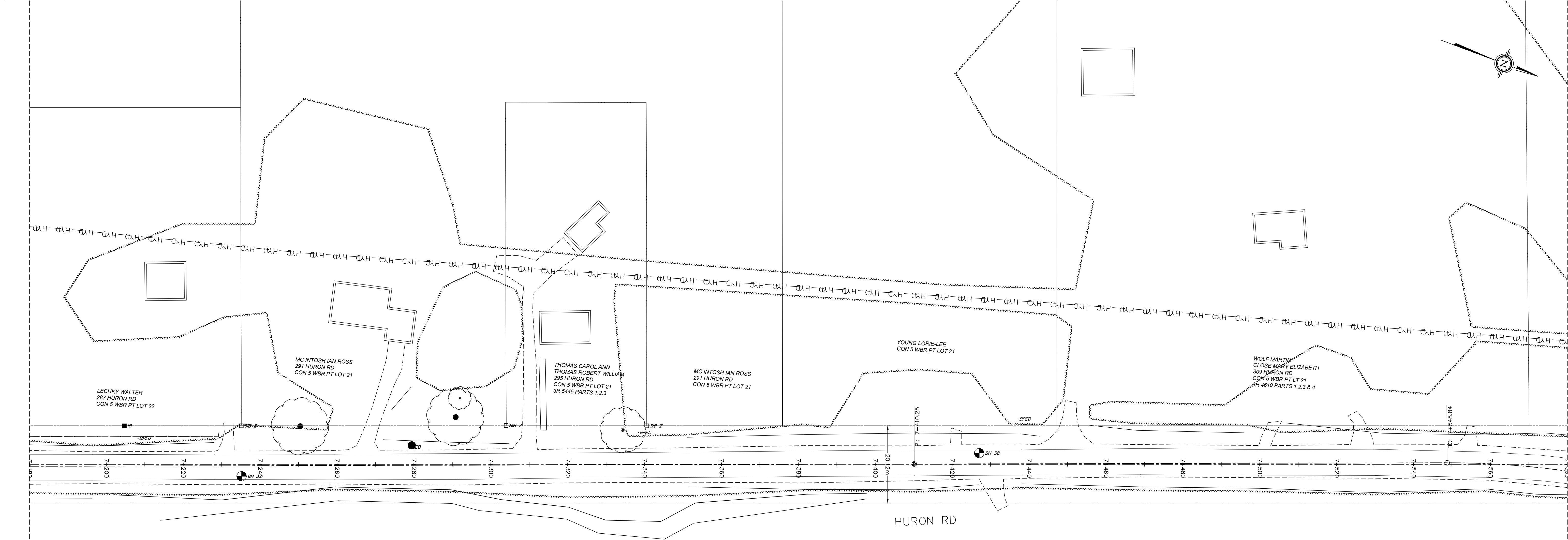


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MATCH LINE - 18
AT STATION - 7+180.00
PREVIOUS SHEET NUMBER - 18

MATCH LINE - 19
AT STATION - 7+580.00
NEXT SHEET NUMBER: 20



THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 7 + 180 TO STA. 7 + 580

SCALE: H 1:500

DRAWN BY: MC

REVISION

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DRWG NO.

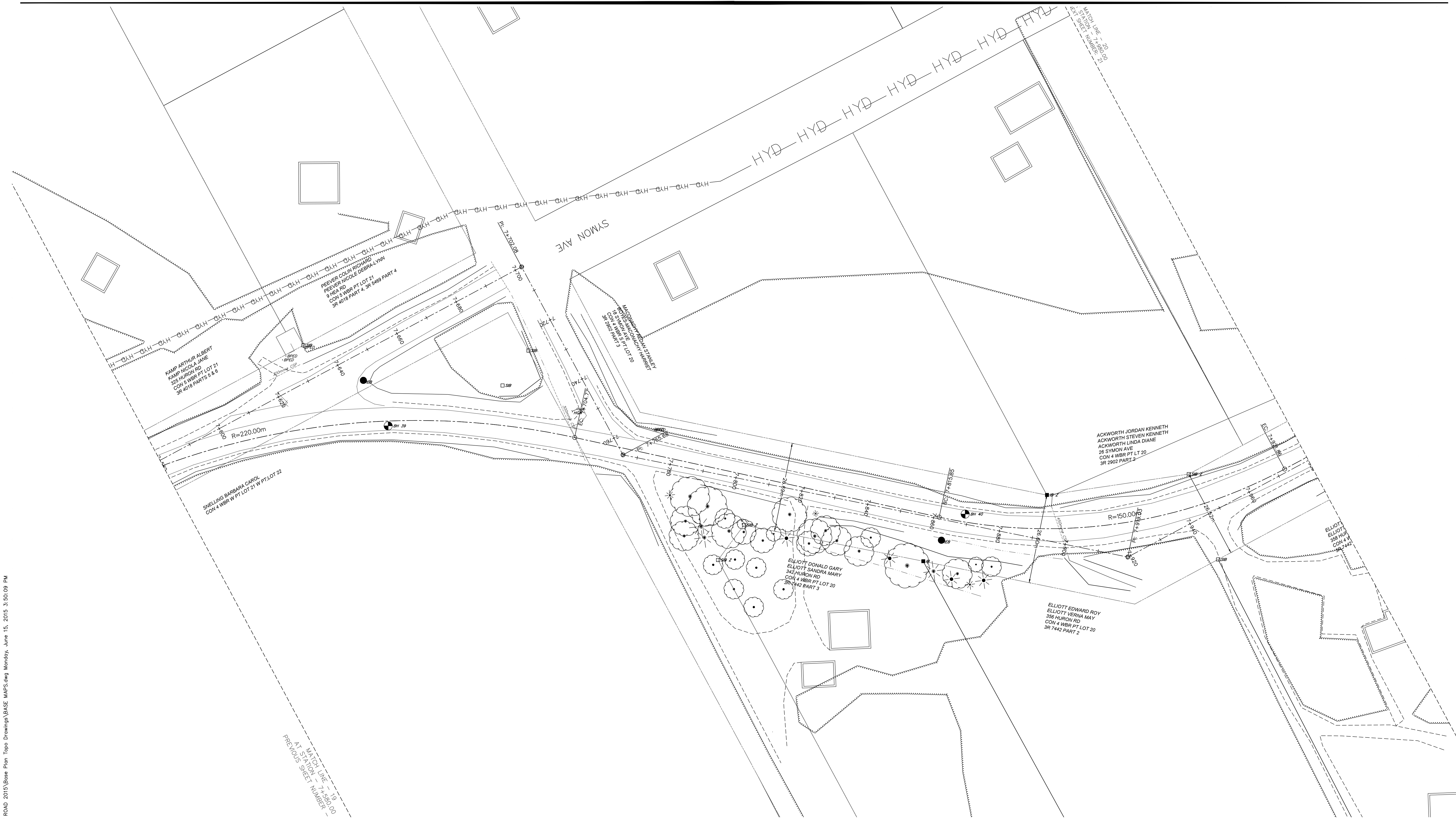
19 of 55



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THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 7 + 580 TO STA. 7 + 980

SCALE: H 1:500

DRAWN BY: MC

REVISION

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0 20 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

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THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 7 + 980 TO STA. 8 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 21 of 55



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THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 8 + 380 TO STA. 8 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWC NO.

0 22 of 55



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J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:51:52 PM

MATCH LINE - 22
AT STATION 8+780.00
EVIOUS SHEET NUMBER - 22

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
AND ABOVE GROUND SERVICES ARE NOT
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 8 + 780 TO STA. 9 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

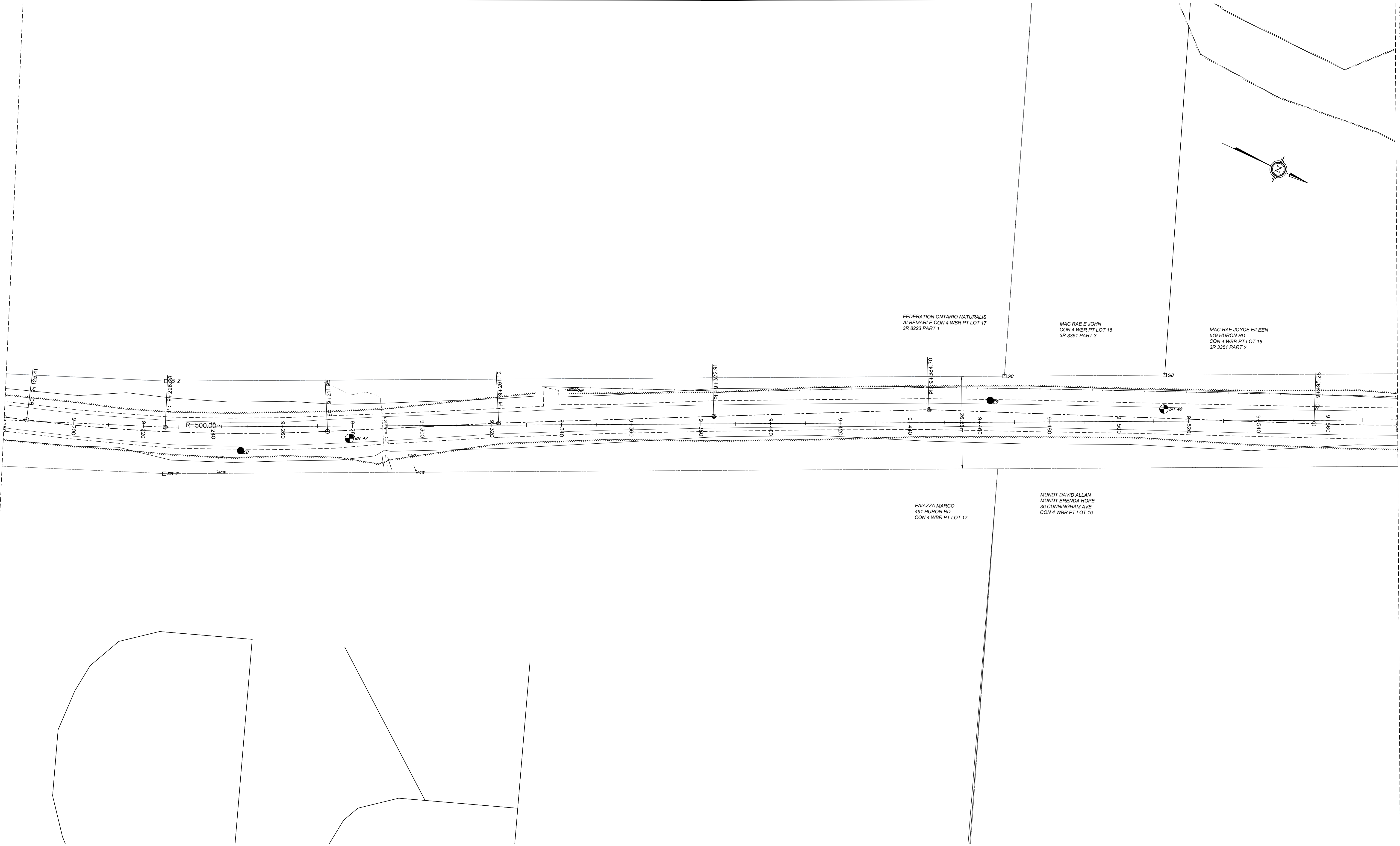
0 23 of 55



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TEL: (519) 881-2400 FAX: (519) 881-1619
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MATCH LINE - 23
AT STATION - 9+180.00
PREVIOUS SHEET NUMBER - 23



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 9 + 180 TO STA. 9 + 580

SCALE: H 1:500
DRAWN BY: MC
0 24 of 55

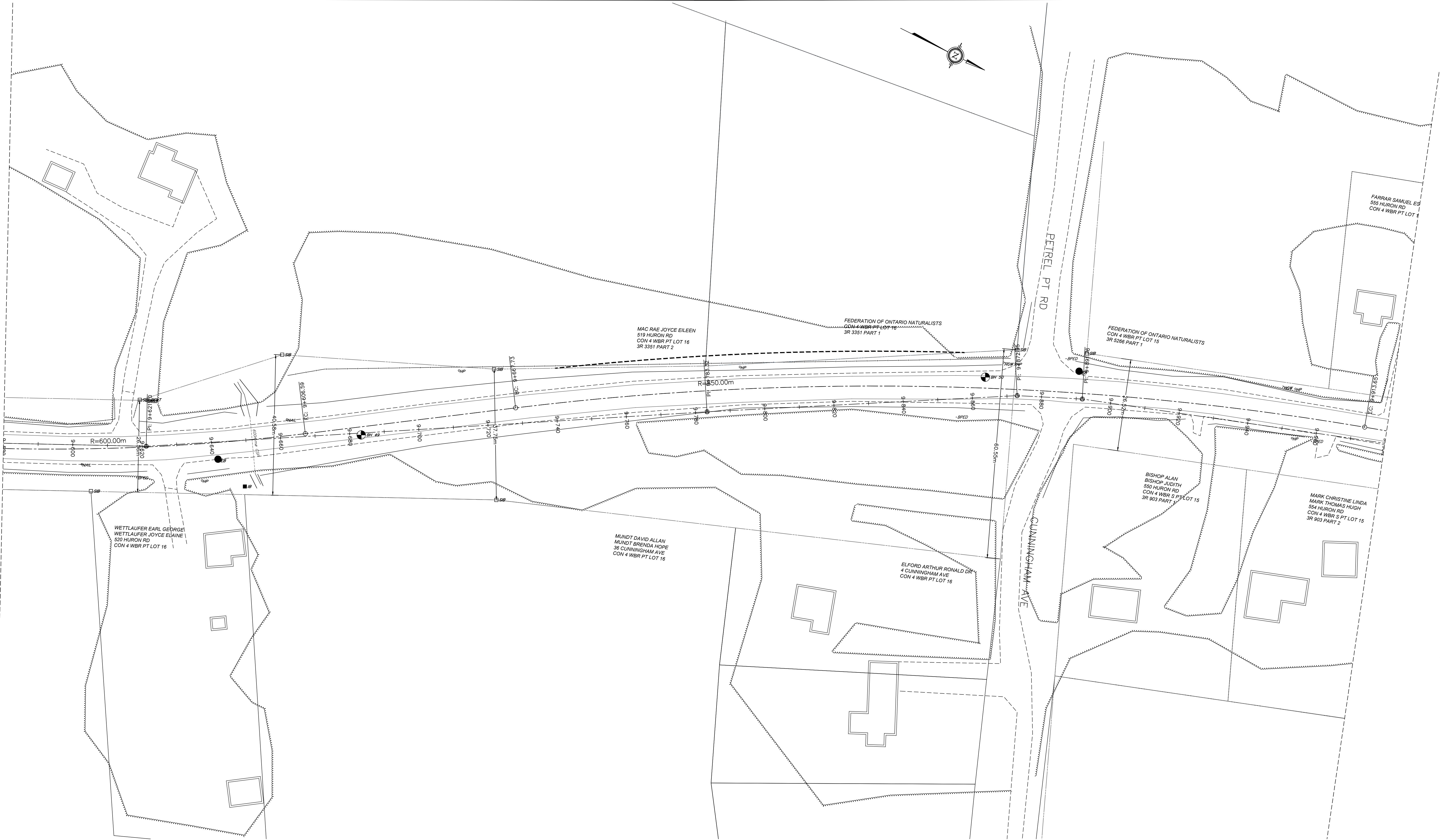


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JATCH LINE - 24
STATION - 9+580.00
JS SHEET NUMBER - 24



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 9 + 580 TO STA. 9 + 980

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

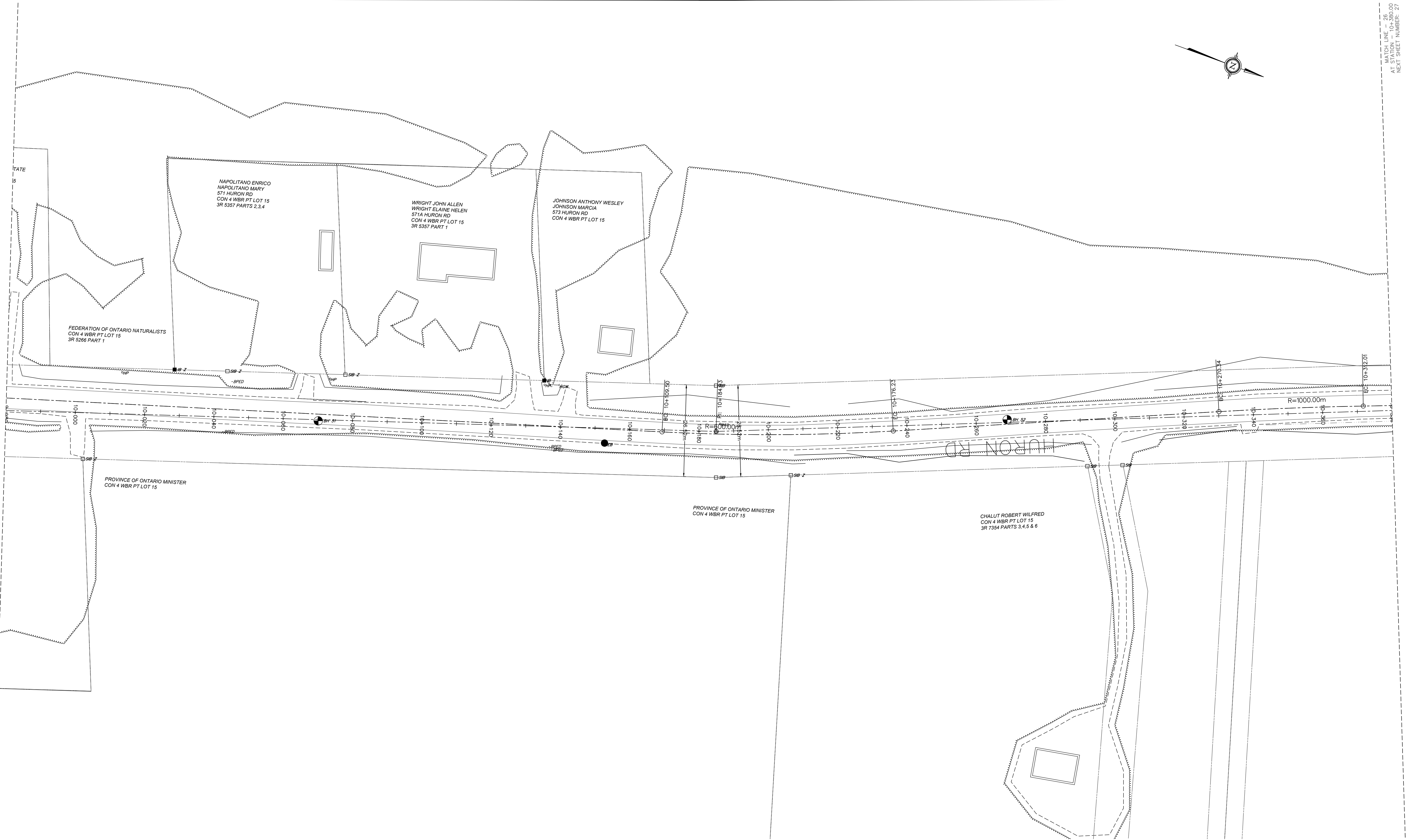
0 25 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 25
AT STATION - 9+980.00
PREVIOUS SHEET NUMBER - 25



MATCH LINE - 26
AT STATION - 10+380.00
NEXT SHEET NUMBER - 27

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 9 + 980 TO STA. 10 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 26 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
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J:\WEST ROAD 2015\Bases Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:54:04 PM

ATCH LINE - 26
ATCH LINE - 10+380.00
PREVIOUS SHEET NUMBER - 26

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
AND ABOVE GROUND SERVICES ARE NOT
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STARTING WORK, VERIFY THE EXACT LOCATIONS OF
ALL SERVICES AND STRUCTURES BY CONTACTING
THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 10 + 380 TO STA. 10 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0

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BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
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CHECKED BY: MC

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 10 + 780 TO STA. 11 + 180

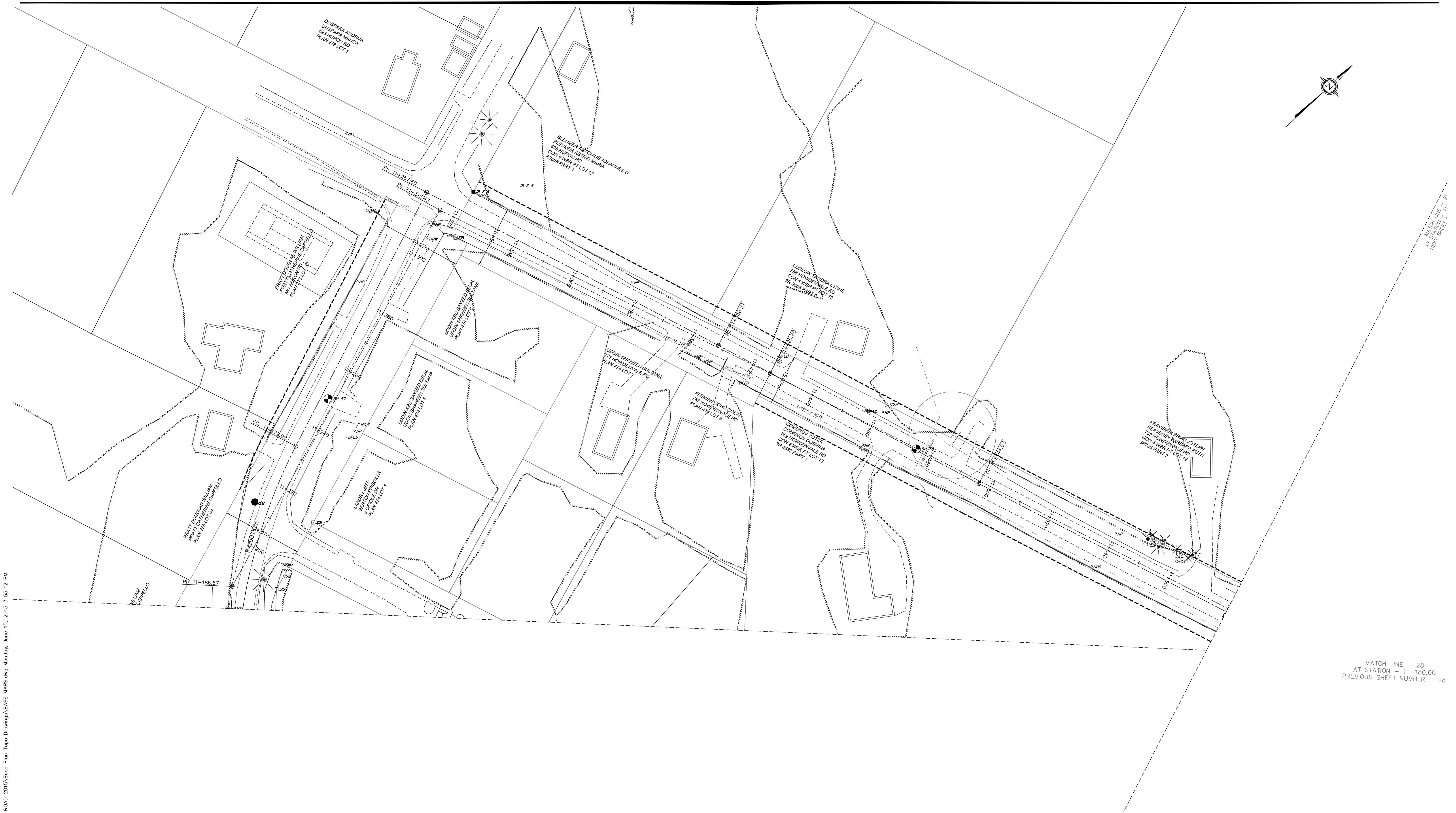
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REVISION
0
DRWG NO.
28 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT
30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

ATCH LINE - 28.00
AT STATION - 1180.00
NEXT SHEET NUMBER: 29

J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:55:12 PM



MATCH LINE - 28
AT STATION - 11+180.00
PREVIOUS SHEET NUMBER - 28

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

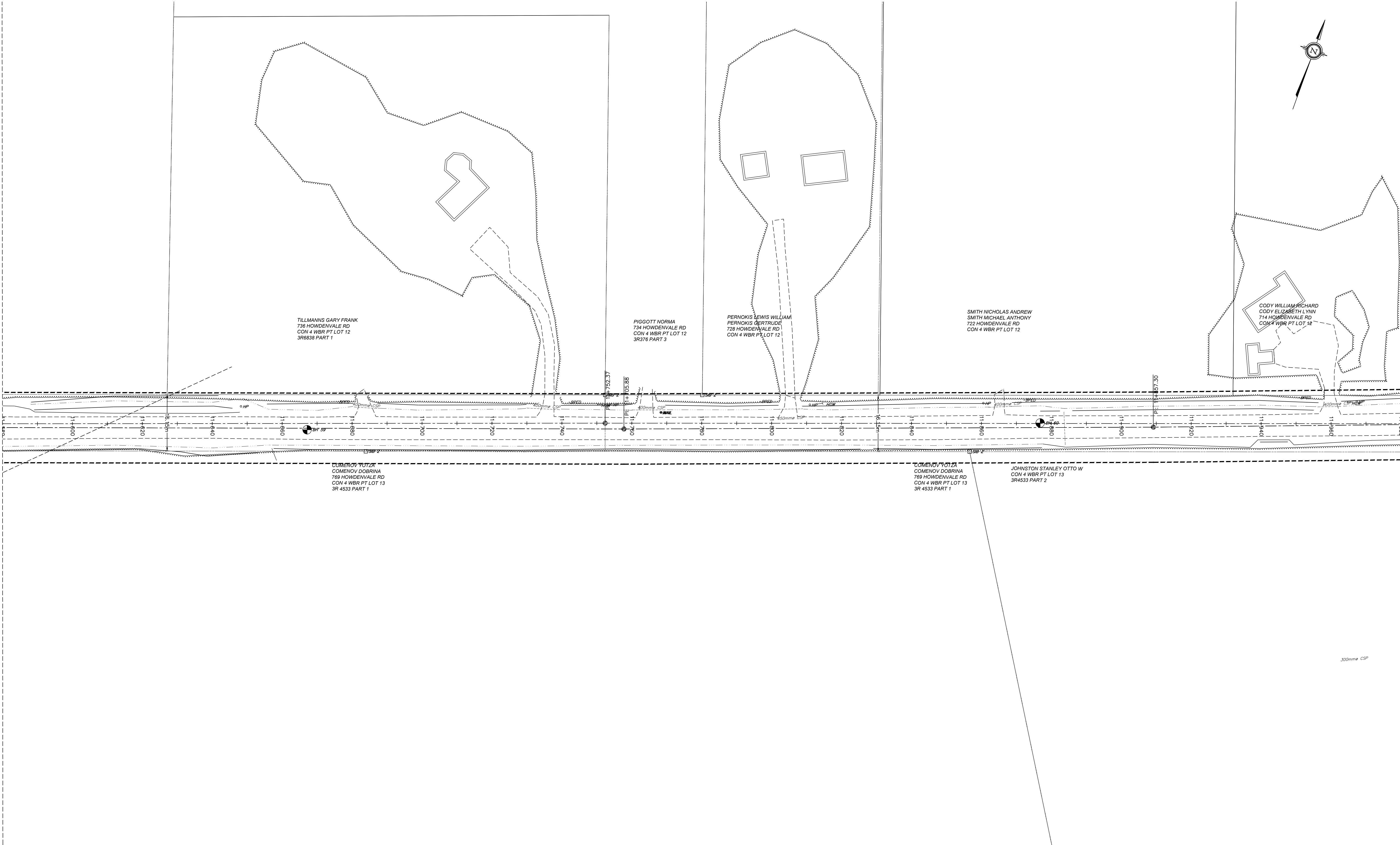
TITLE: STA. 11 + 180 TO STA. 11 + 580

SCALE: H 1:500
DRAWN BY: MC
REVISION: 0
DRWG NO: 29 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT
30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 29
AT STATION - 11+580.00
PREVIOUS SHEET NUMBER - 29



MATCH LINE - 30
AT STATION - 11+980.00
NEXT SHEET NUMBER: 31

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 11 + 580 TO STA. 11 + 980

SCALE: H 1:500
DRAWN BY: MC
0 30 of 55

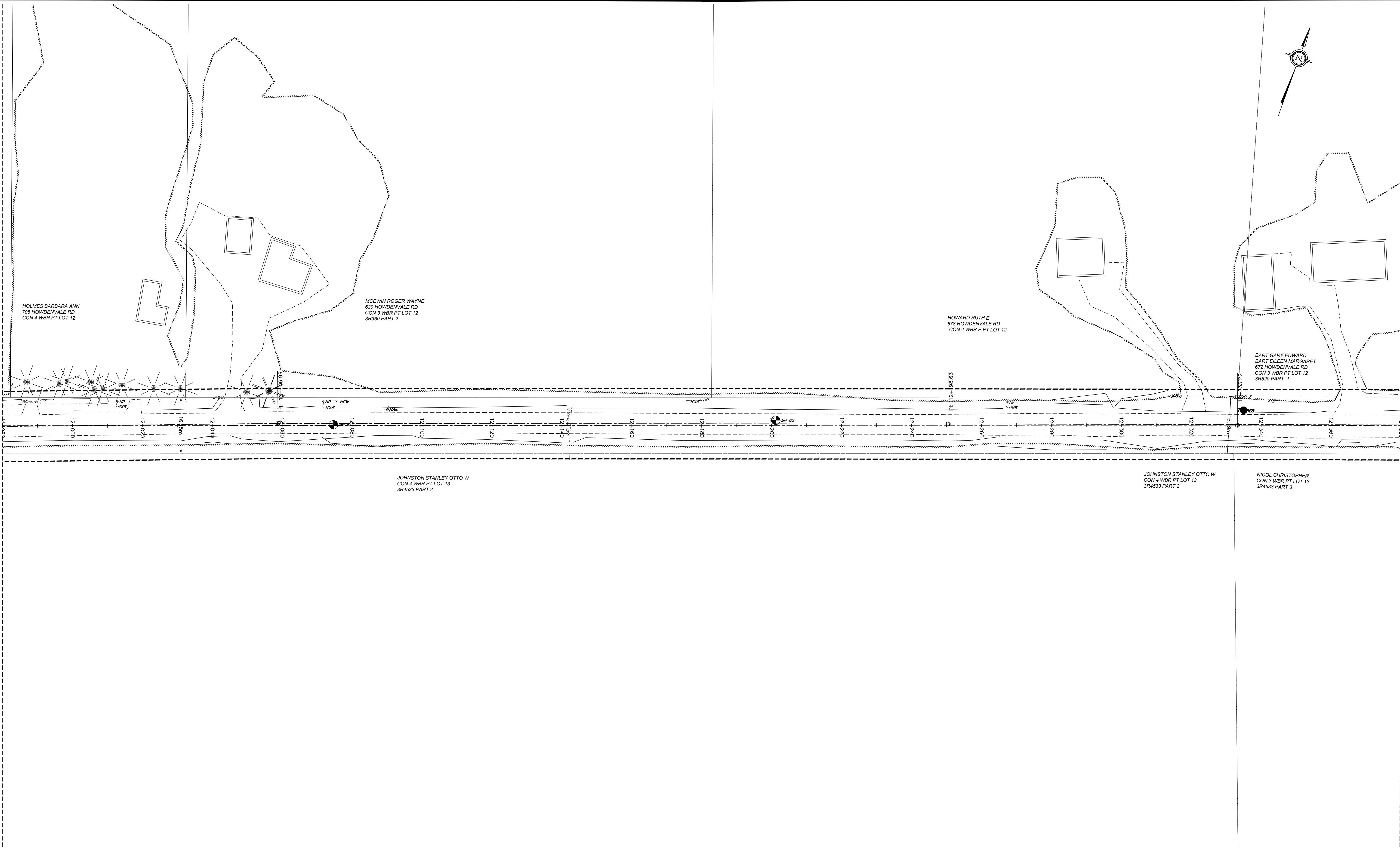


BRUCE COUNTY
HIGHWAYS DEPARTMENT

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TEL: (519) 881-2400 FAX: (519) 881-1619
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J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:56:18 PM

MATCH LINE - 30
AT STATION - 11+980.00
PREVIOUS SHEET NUMBER - 30



AT STATION - 12+380.00
NEXT SHEET NUMBER: 32

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 11 + 980 TO STA. 12 + 380

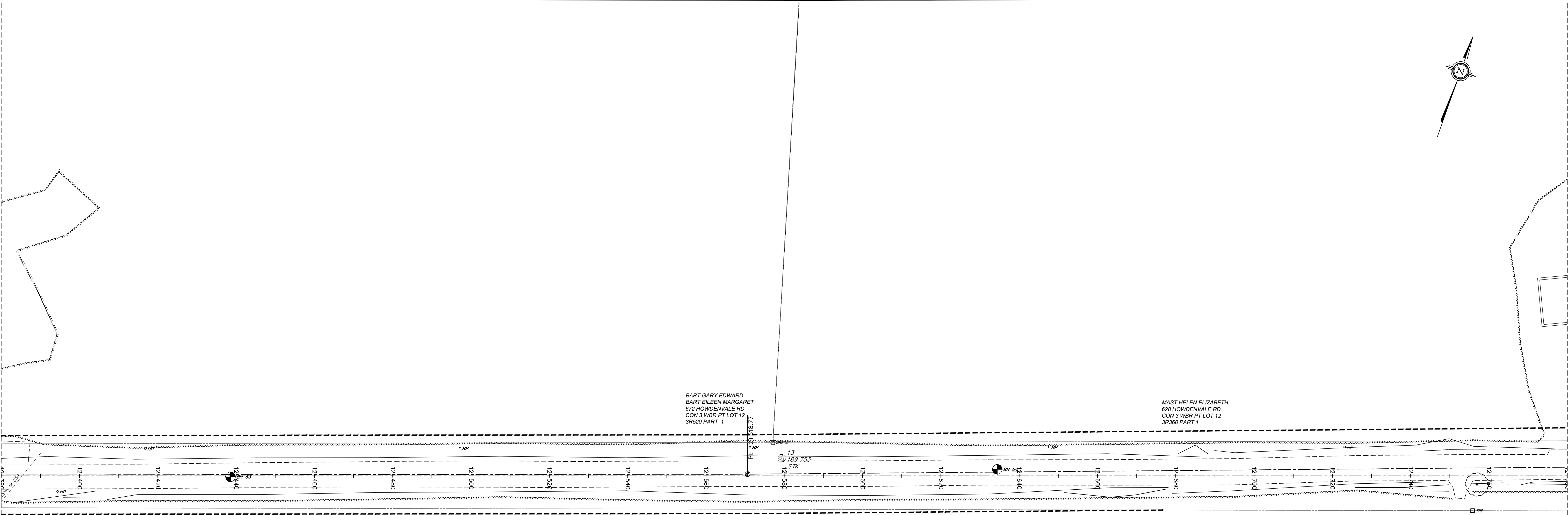
SCALE: H 1:500
DRAWN BY: MC
0 31 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 31
AT STATION - 12+380.00
PREVIOUS SHEET NUMBER - 31



MATCH LINE - 32
AT STATION - 12+780.00
NEXT SHEET NUMBER - 33

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 12 + 380 TO STA. 12 + 780

SCALE: H 1:500
DRAWN BY: MC
REVISION 0
DRWG NO. 32 of 55

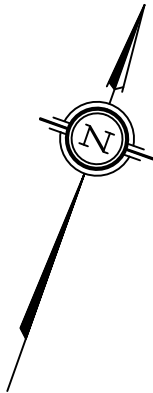
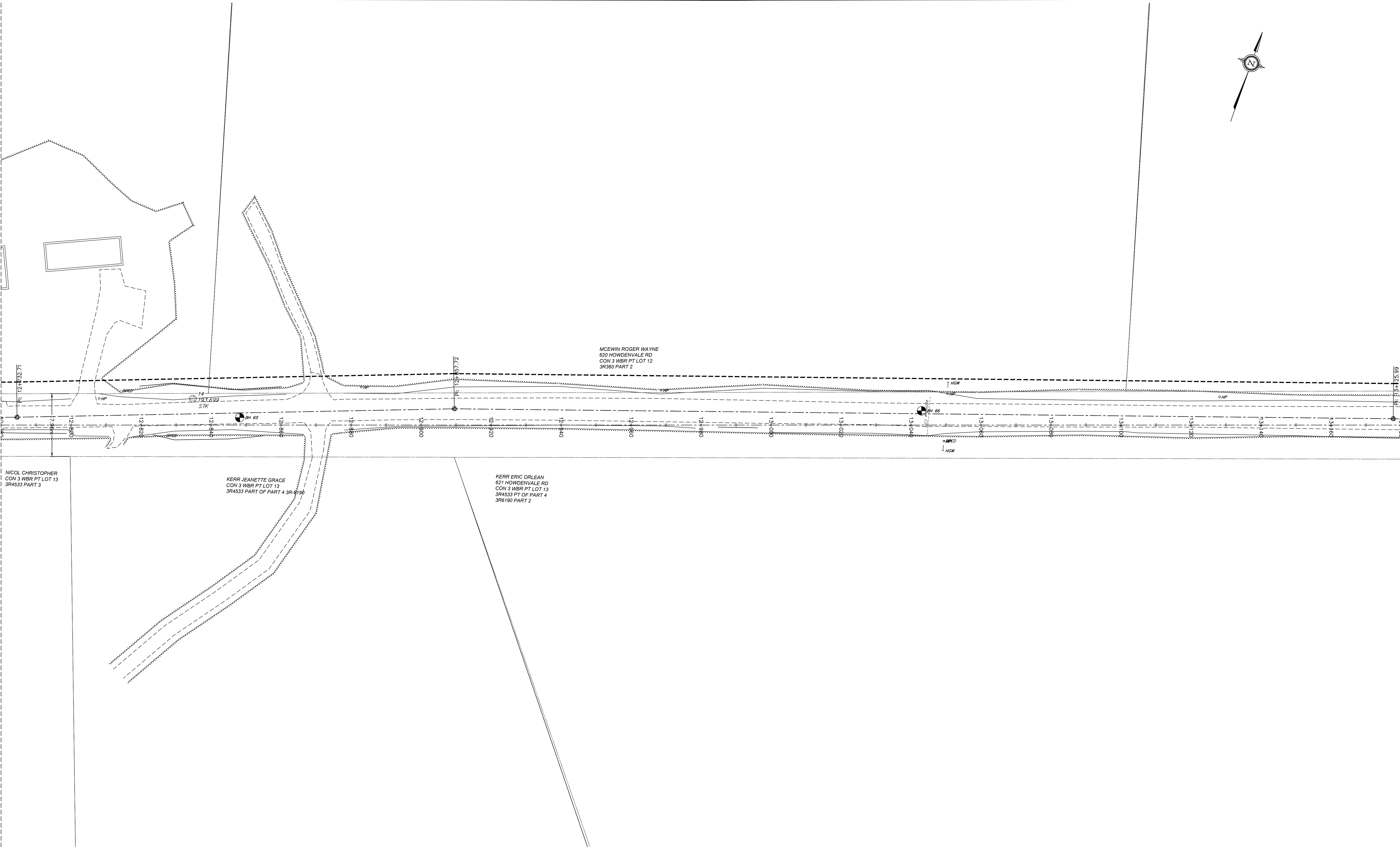


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30 PARK STREET, WALKERTON ON N0C 2V0
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MATCH LINE - 32
AT STATION - 12+780.00
PREVIOUS SHEET NUMBER - 32



AT STATION - 13+180.00
NEXT SHEET NUMBER: 34

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 12 + 780 TO STA. 13 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

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DRWG NO.

33 of 55

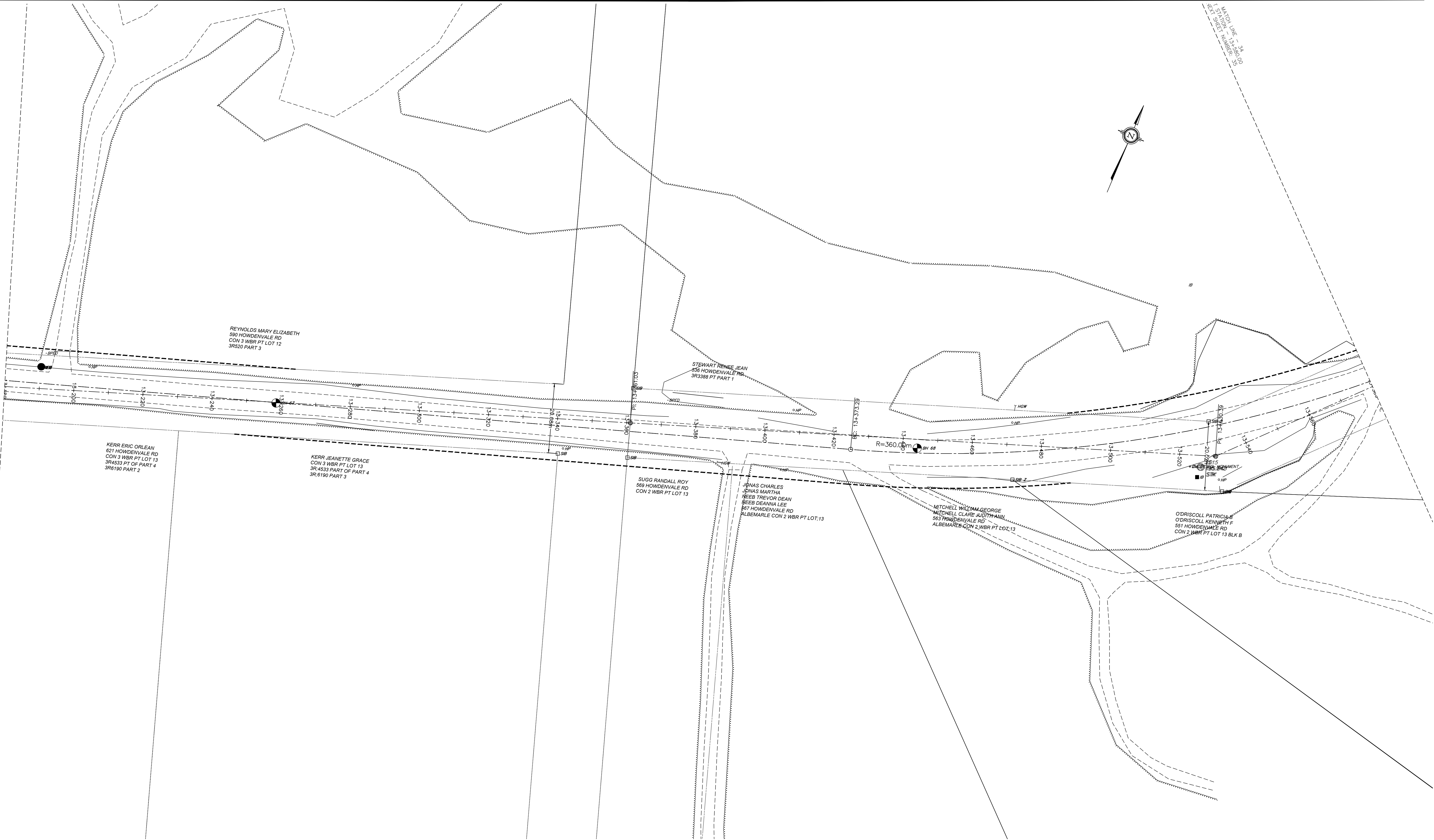


BRUCE COUNTY
HIGHWAYS DEPARTMENT

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J:\WEST ROAD 2015\Bases Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 3:57:54 PM

MATCH LINE - 33
AT STATION - 13+180.00
PREVIOUS SHEET NUMBER - 33



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 13 + 180 TO STA. 13 + 580

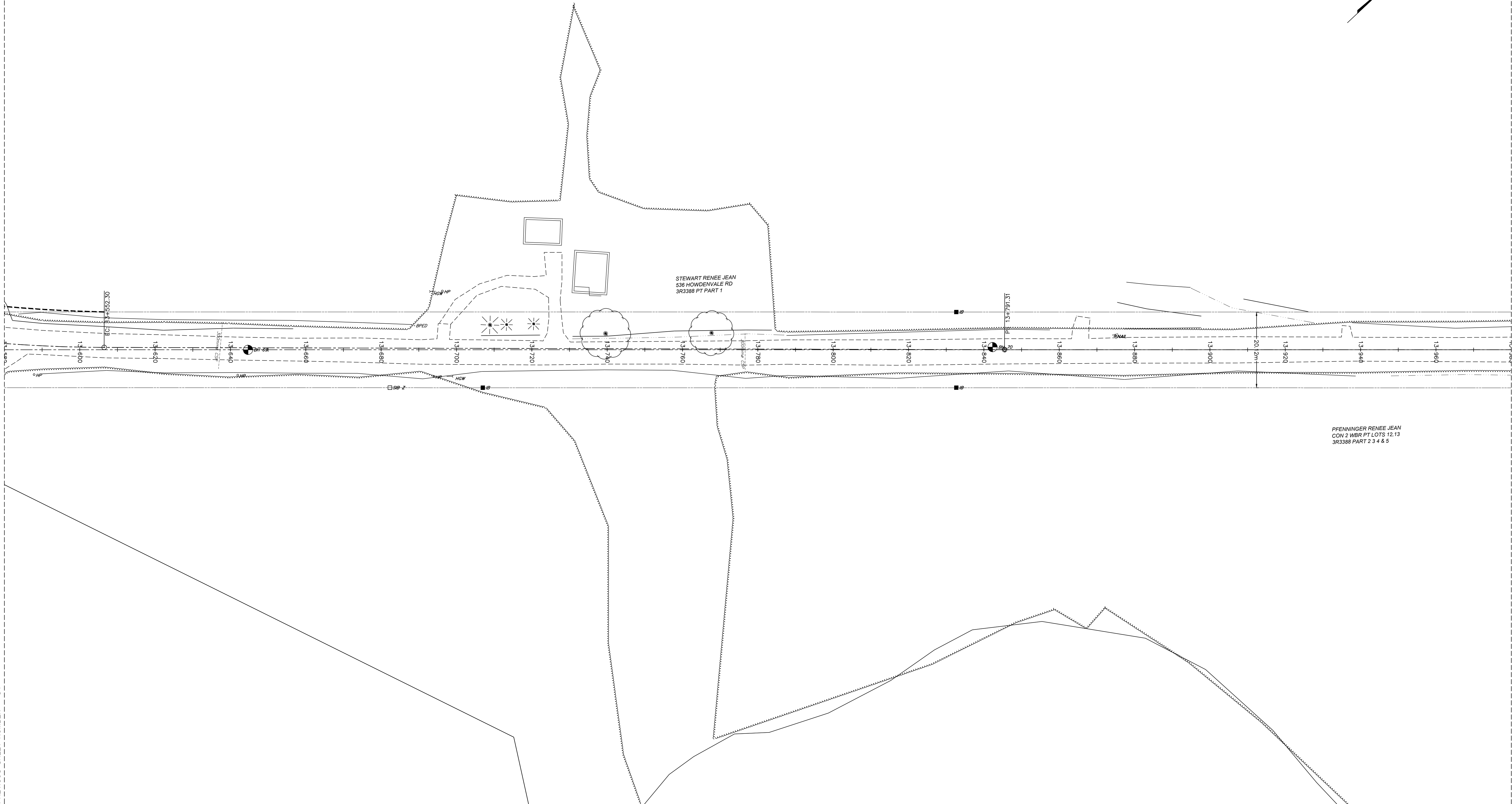
SCALE: H 1:500
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0 34 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 34
AT STATION - 13+580.00
PREVIOUS SHEET NUMBER - 34



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 13 + 580 TO STA. 13 + 980

SCALE: H 1:500
DRAWN BY: MC
REVISION: 0
DRWG NO.: 35 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 35
AT STATION - 13+980.00
PREVIOUS SHEET NUMBER - 35

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 13 + 980 TO STA. 14 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

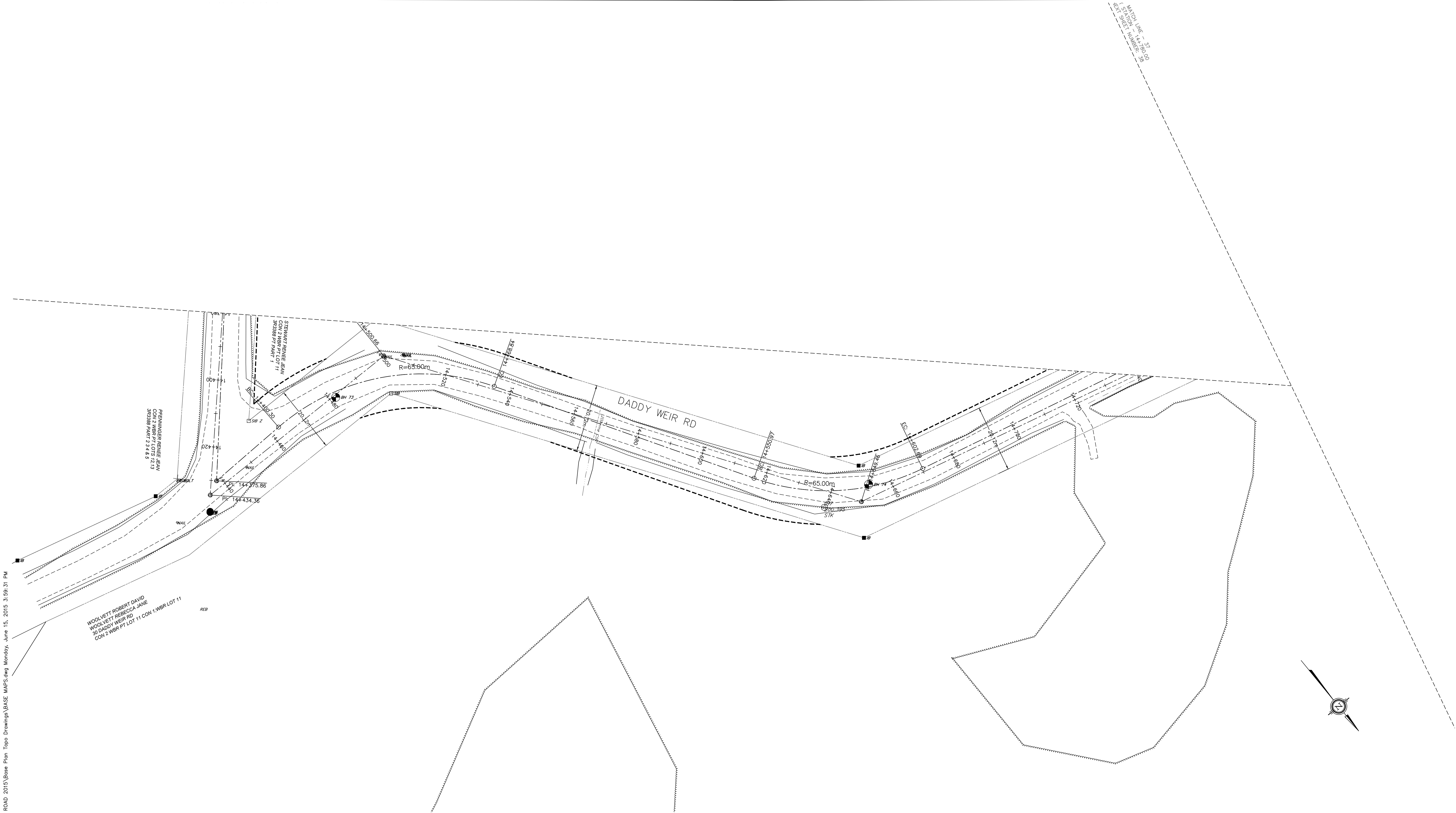
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0 36 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
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THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 14 + 380 TO STA. 14 + 780

SCALE: H 1:500
DRAWN BY: MC
REVISION: 0
DRWG NO.: 37 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0G 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
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DRAWING NUMBER 37

15
24
36
50
66

STEWART RENEE JEAN
CON 2 WBR PT LOT 11
3R3388 PT PART 1

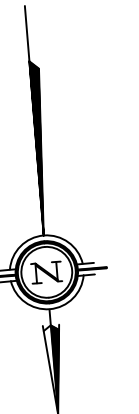
PT ROBERT DAVID
PT REBECCA JANE
WEIR RD
BR PT LOT 11 CON 1, WBR LOT 11

DADDY WEIR RD

WOOLVETT ROBERT DAVID
WOOLVETT REBECCA JANE
30 DADDY WEIR RD
CON 2 WBR PT LOT 11 CON 1, WBR LOT 11

STEWART RENEE JEAN
CON 2 WBR PT LOT 11
3R3388 PT PART 1

SNOBELEN WANDA MAY
CON 2 WBR LOT 10



THE POSITION OF POLE LINES, CONDUITS,
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 14 + 780 TO STA. 15 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

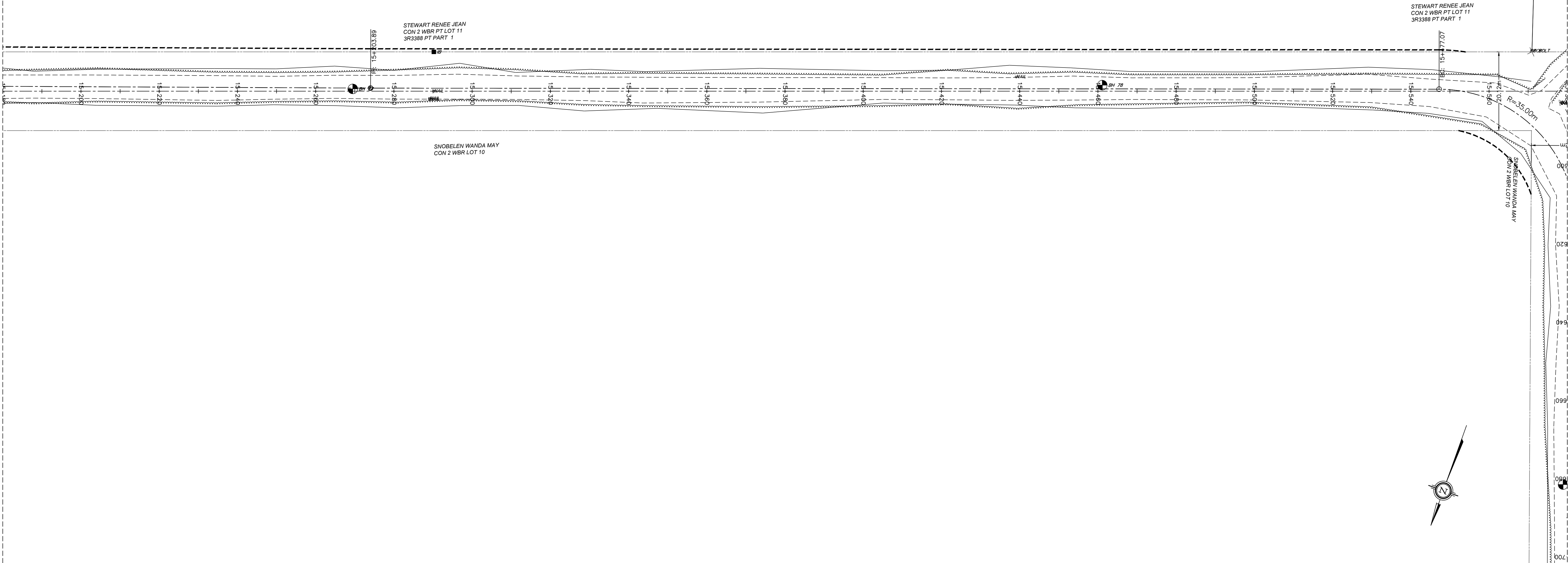
0 38 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0G 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 38
AT STATION - 15+180.00
PREVIOUS SHEET NUMBER - 38



AT STATION - 15+580.00
NEXT SHEET NUMBER: 40

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 15 + 180 TO STA. 15 + 580

SCALE: H 1:500
DRAWN BY: MC
REVISION 0
DRWG NO. 39 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

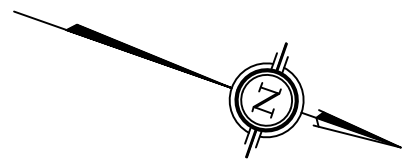
30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

J:\WEST ROAD 2015\Bases Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 4:01:39 PM

MATCH LINE - 40
AT STATION - 15+980.00
PREVIOUS SHEET NUMBER - 40

1539025 ONTARIO LIMITED
KEYS LOIS ANN
171 DADDY WEIR RD
ALBEMARLE CON 3 WBR LOT 7 TO 9

SNOBELN WANDA MAY
DUDGEON EVA MAY
DUDGEON FLOYD ELROY
CON 2 WBR LOT 7 TO 9



MATCH LINE - 41
AT STATION - 16+380.00
NEXT SHEET NUMBER: 42

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
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NECESSARILY SHOWN ON THE DRAWINGS AND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 15 + 980 TO STA. 16 + 380

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWC NO.

0 41 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

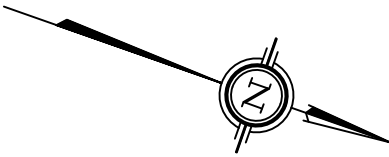
30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 4:02:11 PM

MATCH LINE - 41
AT STATION - 16+380.00
PREVIOUS SHEET NUMBER - 41

1539025 ONTARIO LIMITED
KEYS LOIS ANN
171 DADDY WEIR RD
ALBEMARLE CON 3 WBR LOT 7 TO 9

SUGBLEN WANDA MAY
DUDGEON EVA MAY
DUDGEON FLOYD ELROY
CON 2 WBR LOT 7 TO 9



MATCH LINE - 42
AT STATION - 16+780.00
NEXT SHEET NUMBER: 43

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
AND ABOVE GROUND SERVICES ARE NOT
NECESSARILY SHOWN ON THE DRAWINGS AND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 16 + 380 TO STA. 6 + 780

SCALE: H 1:500

DRAWN BY: MC

REVISION

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DRWG NO.

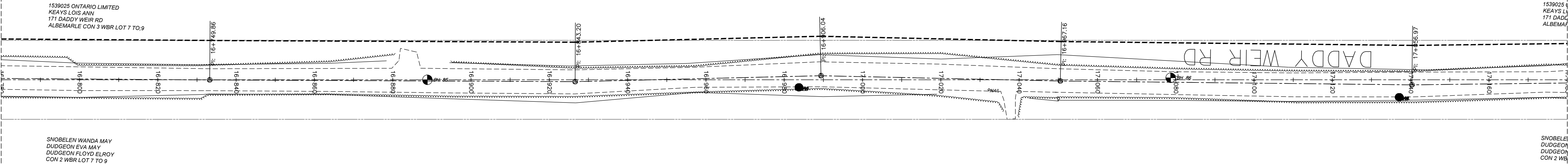
42 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 42
AT STATION - 16+780.00
PREVIOUS SHEET NUMBER - 42



MATCH LINE - 43
AT STATION - 17+180.00
NEXT SHEET NUMBER: 44

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 16 + 780 TO STA. 17 + 180

SCALE: H 1:500
DRAWN BY: MC
REVISION: 0
DRWG NO. 43 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

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MATCH LINE - 43
AT STATION - 17+180.00
PREVIOUS SHEET NUMBER - 43

ONTARIO LIMITED
VIS ANN
Y WEIR RD
7LE CON 3 WBR LOT 7 TO 9

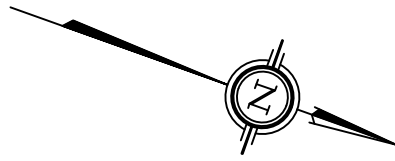
N WANDA MAY
EVA MAY
FLOYD ELROY
R LOT 7 TO 9

RODGERS ROBERT JAMES
CON 2 WBR LOT 6

GRAHAM LEONARD GEORGE
JACOBS RONALD ALFRED
CON 3 WBR S PT LOT 6
3R1314 PART 2

HOLLAND KENNETH JAMES
CON 3 WBR N PT LOT 6
3R1314 PART 1

RODGERS ROBERT JAMES
CON 2 WBR LOT 6



MATCH LINE - 44
AT STATION - 17+580.00
NEXT SHEET NUMBER: 45

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 17 + 180 TO STA. 17 + 580

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

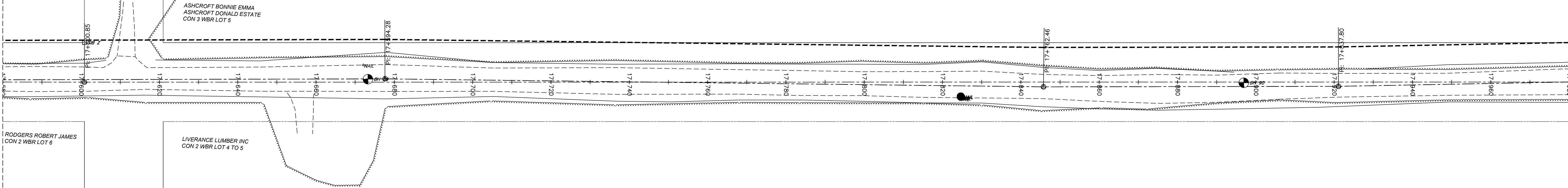
0 44 of 55



BRUCE COUNTY
HIGHWAYS DEPARTMENT

30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 44
AT STATION - 17+580.00
PREVIOUS SHEET NUMBER - 44



MATCH LINE - 45
AT STATION - 17+980.00
NEXT SHEET NUMBER: 46

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 17 + 580 TO STA. 17 + 980

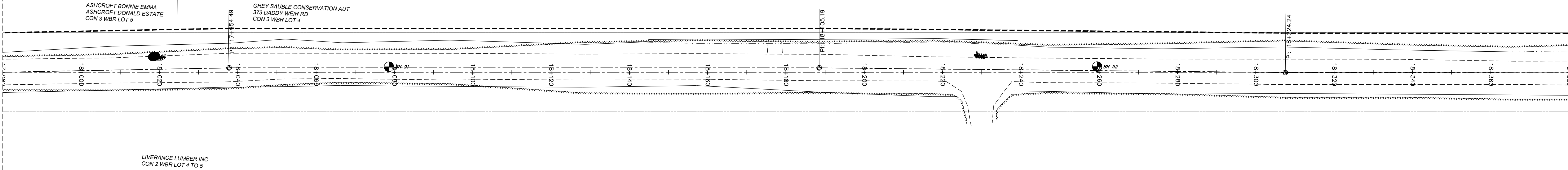
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TEL: (519) 881-2400 FAX: (519) 881-1619
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MATCH LINE - 45
AT STATION - 17+980.00
PREVIOUS SHEET NUMBER - 45



AT STATION - 18+380.00
NEXT SHEET NUMBER: 47

THE POSITION OF POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER UNDERGROUND
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NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 17 + 980 TO STA. 18 + 380

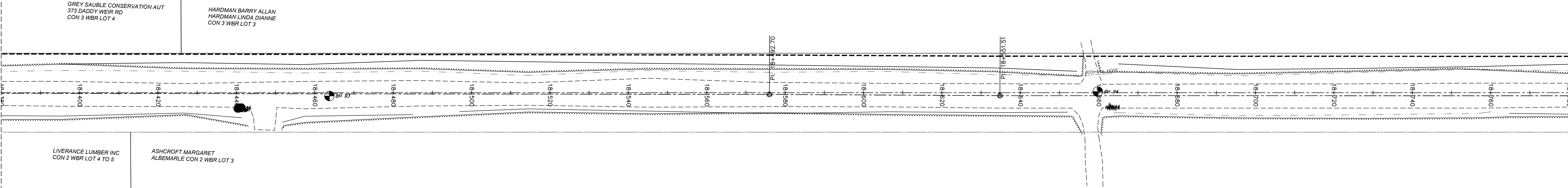
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REVISION: 0
DRWG NO: 46 of 55



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MATCH LINE - 46
AT STATION - 18+380.00
PREVIOUS SHEET NUMBER - 46



MATCH LINE - 47
AT STATION - 18+780.00
NEXT SHEET NUMBER: 48

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 18 + 380 TO STA. 18 + 780

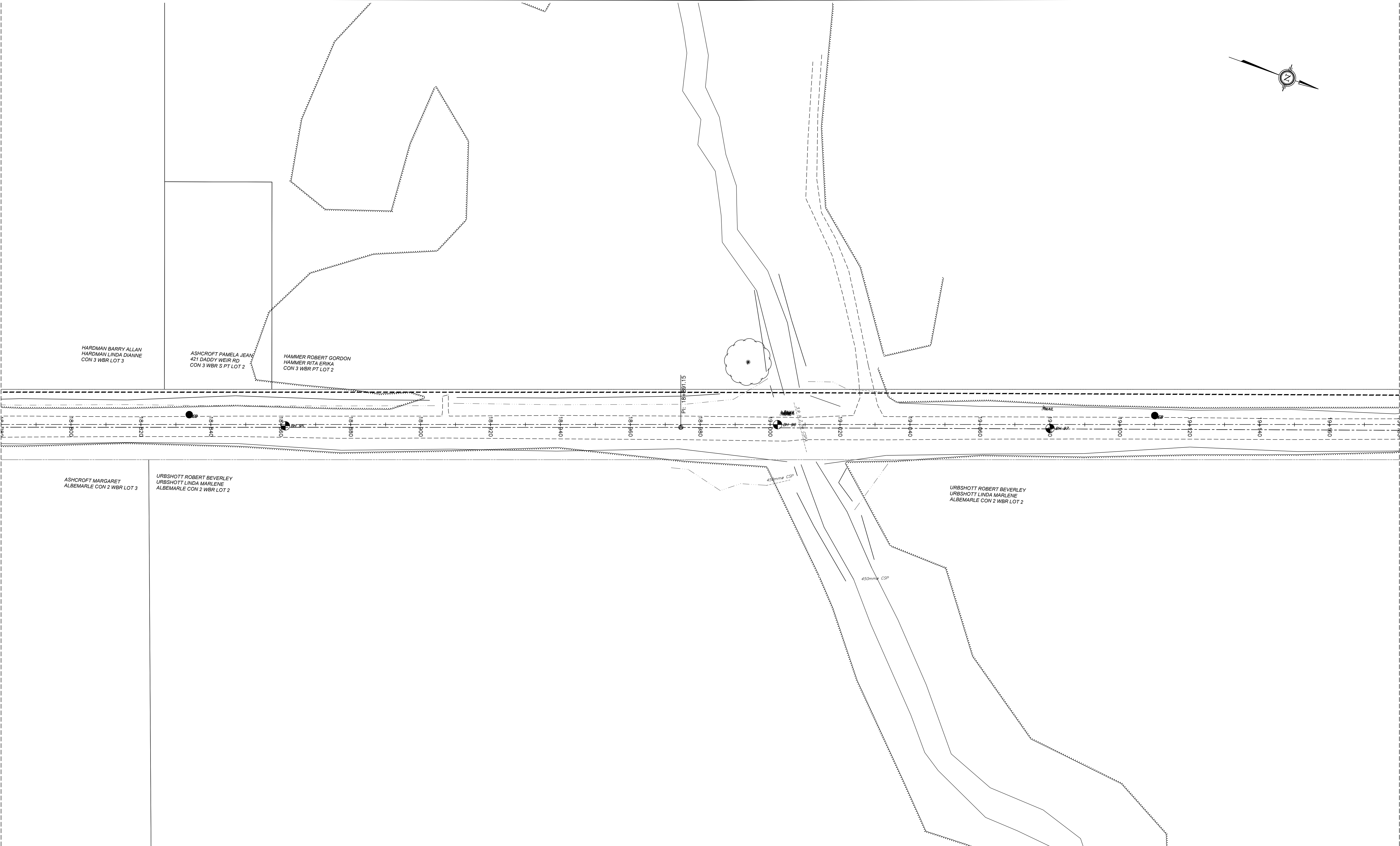
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REVISION: 0
DRWG NO.: 47 of 55



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MATCH LINE - 47
AT STATION - 18+780.00
PREVIOUS SHEET NUMBER - 47



MATCH LINE - 48
AT STATION - 19+180.00
NEXT SHEET NUMBER: 49

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 18 + 780 TO STA. 19 + 180

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 48 of 55



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J:\WEST ROAD 2015\Base Plan Topo Drawings\BASE MAPS.dwg Monday, June 15, 2015 4:05:52 PM

MATCH LINE - 48
AT STATION - 19+180.00
PREVIOUS SHEET NUMBER - 48

MATCH LINE - 49
AT STATION - 19+580.00
NEXT SHEET NUMBER: 50

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

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NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 19 + 180 TO STA. 19 + 580

SCALE: H 1:500

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REVISION

DRWG NO.

0 49 of 55

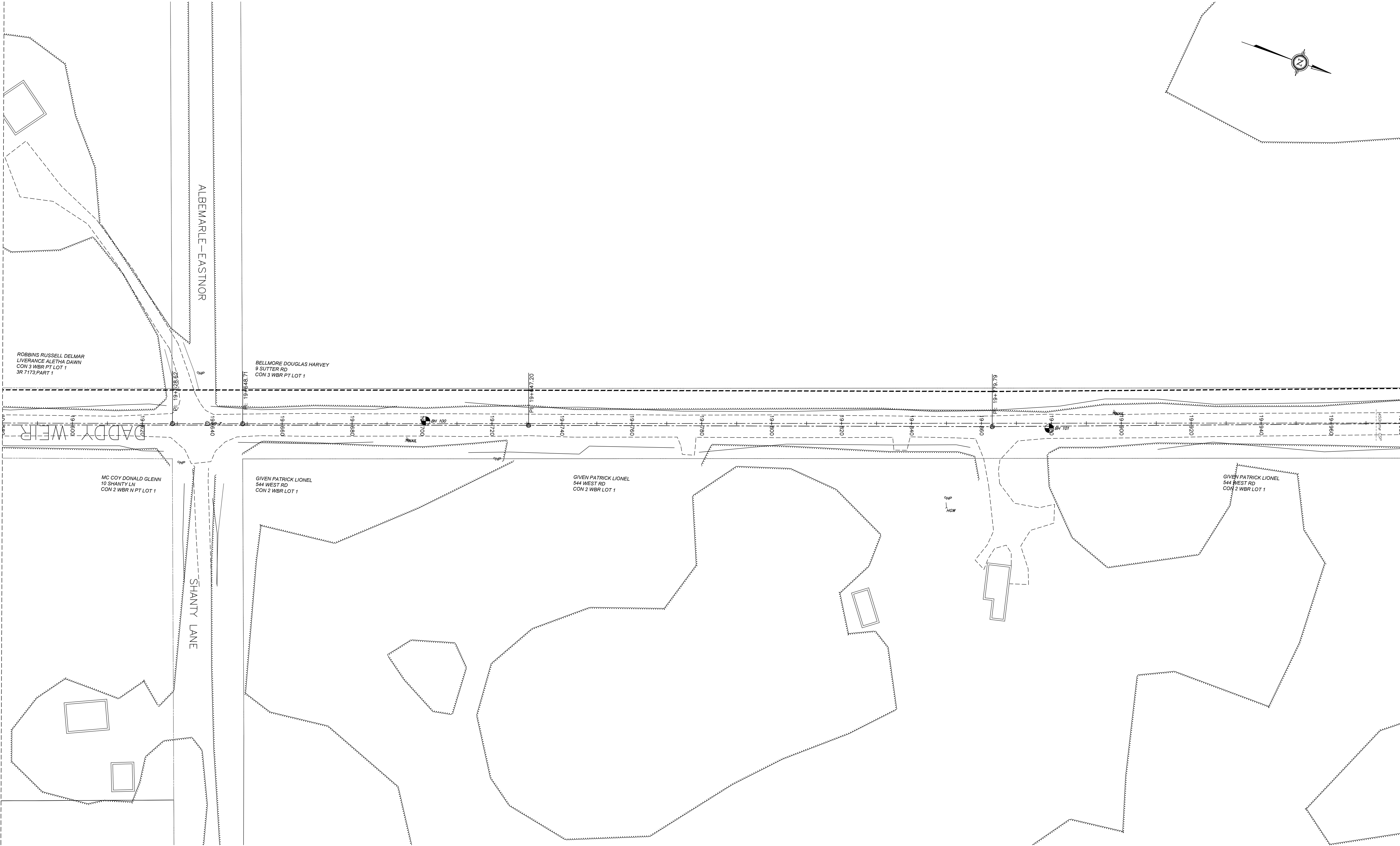


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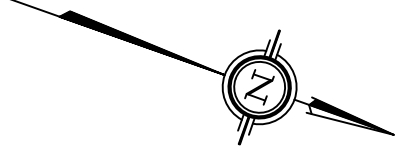
30 PARK STREET, WALKERTON ON N0C 2V0
TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

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MATCH LINE - 49
AT STATION - 19+580.00
PREVIOUS SHEET NUMBER - 48



MATCH LINE - 50
AT STATION - 19+980.00
NEXT SHEET NUMBER: 51



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 19 + 580 TO STA. 19 + 980

SCALE: H 1:500
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0 50 of 55

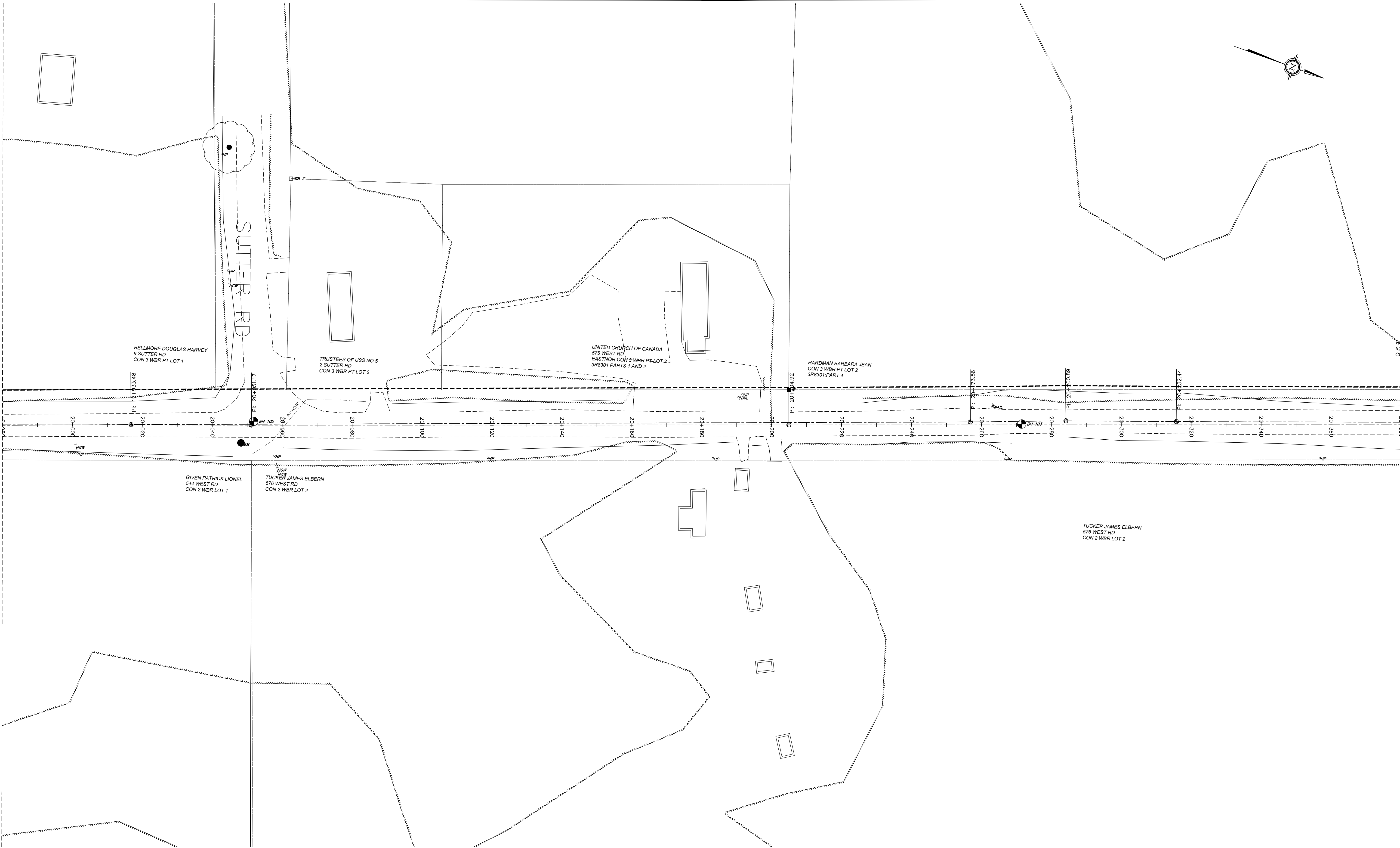


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MATCH LINE - 50
AT STATION - 19+980.00
PREVIOUS SHEET NUMBER - 50



MATCH LINE - 51
AT STATION - 20+380.00
NEXT SHEET NUMBER: 52

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 19 + 980 TO STA. 20 + 380

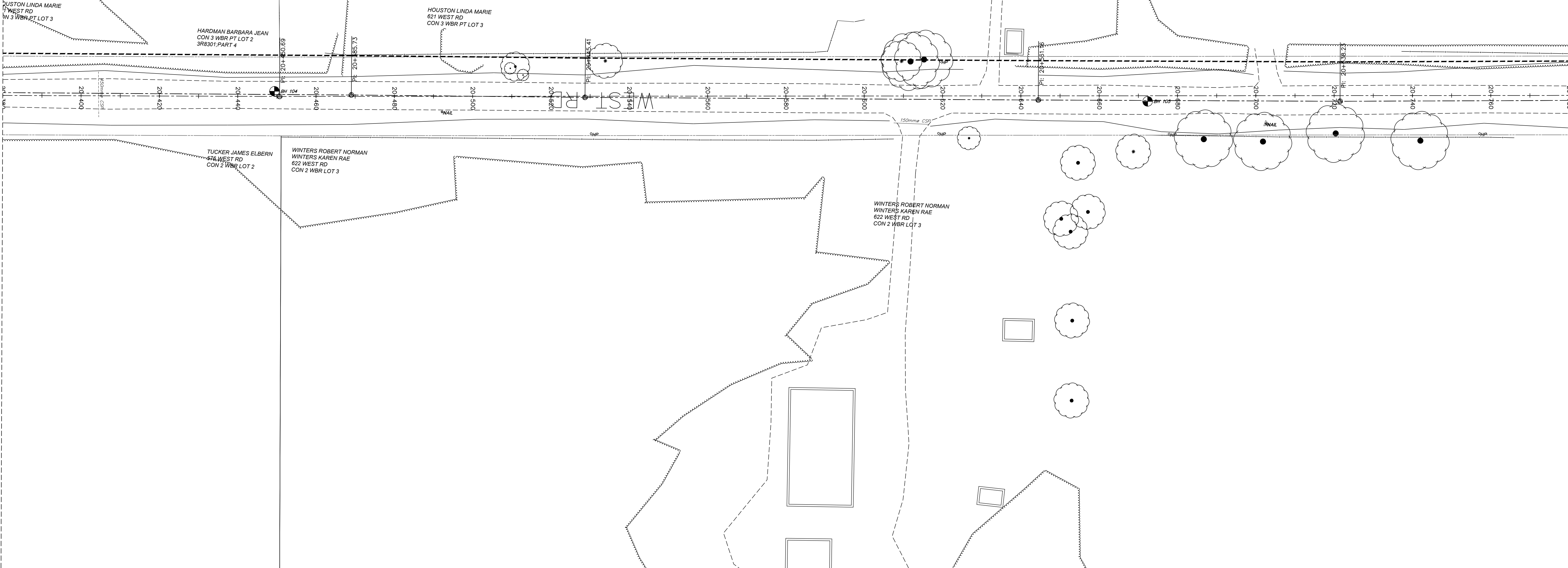
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0 51 of 55



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MATCH LINE - 51
AT STATION - 20+380.00
PREVIOUS SHEET NUMBER - 51



MATCH LINE - 52
AT STATION - 20+780.00
NEXT SHEET NUMBER: 53

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

NORTH

NOTES:

0	FIRST PLOT	MC	JUNE 12/15
NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 20 + 380 TO STA. 20 + 780

SCALE: H 1:500
DRAWN BY: MC
REVISION
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DRWG NO.
52 of 55



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TEL: (519) 881-2400 FAX: (519) 881-1619
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MATCH LINE - 52
AT STATION - 20+780.00
PREVIOUS SHEET NUMBER - 52

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND SERVICES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS AND WHERE SHOWN, THE ACCURACY OF EACH UTILITY AND STRUCTURE IS NOT GUARANTEED. BEFORE STARTING WORK, VERIFY THE EXACT LOCATIONS OF ALL SERVICES AND STRUCTURES BY CONTACTING THE APPROPRIATE AGENCY/UTILITY

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PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 20 + 780 TO STA. 21 + 180

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REVISION

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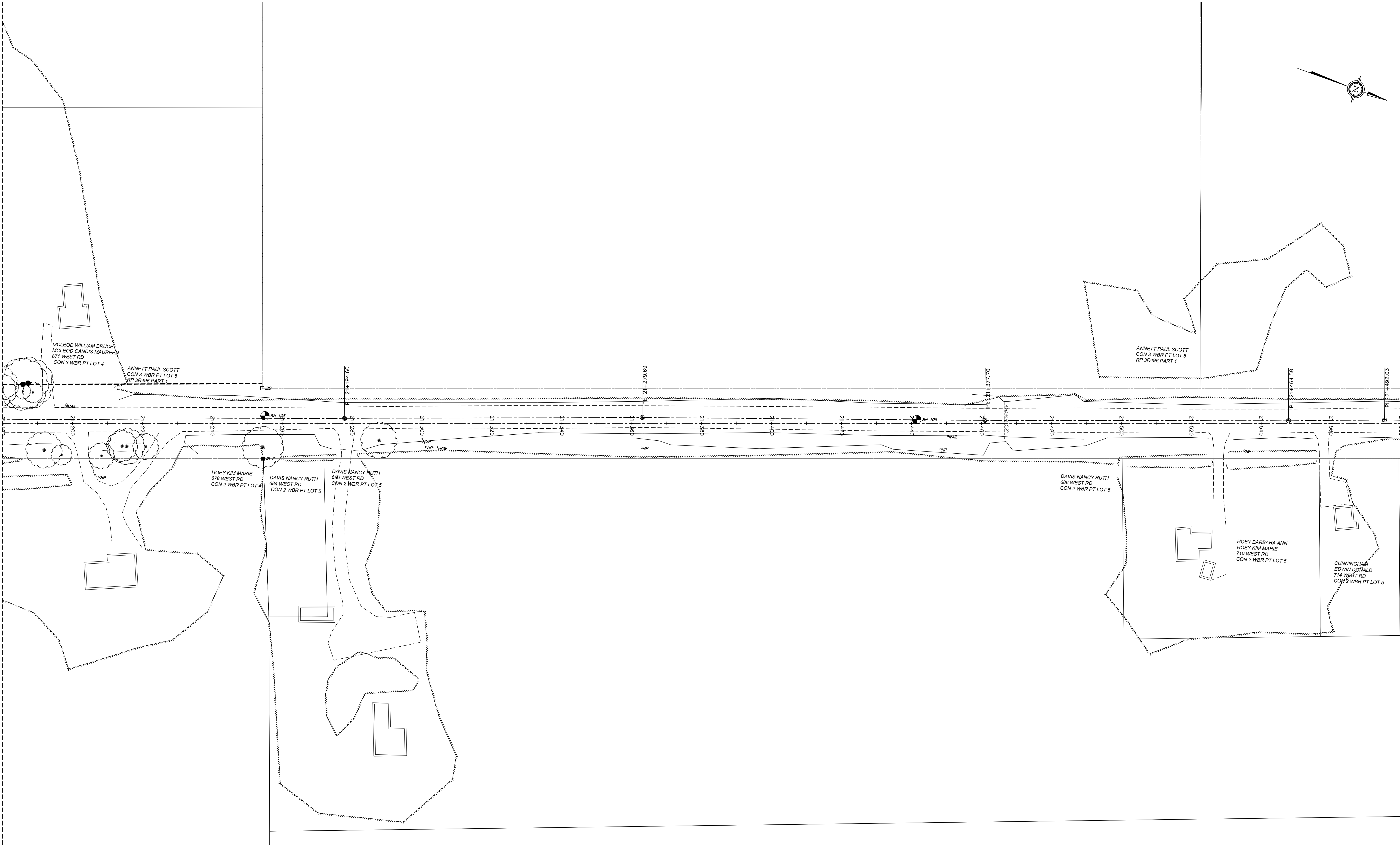
0 53 of 55



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TEL: (519) 881-2400 FAX: (519) 881-1619
bchighways@brucecounty.on.ca

MATCH LINE - 53
AT STATION - 21+180.00
PREVIOUS SHEET NUMBER - 53



AT STATION - 21+580.00
MATCH LINE - 54
NEXT SHEET NUMBER: 55

THE POSITION OF POLE LINES, CONDUITS,
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NOTES:

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NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 21 + 180 TO STA. 21 + 580

SCALE: H 1:500
DRAWN BY: MC
0 54 of 55



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MATCH LINE - 54
AT STATION - 21+580.00
PREVIOUS SHEET NUMBER - 54

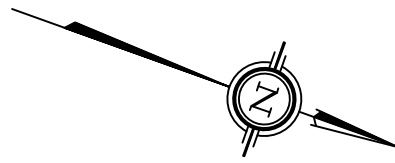
ROBINSON LINDA MAY
CON 3 WBR PT LOT 5

BRIGHT RUTH ANNE
CON 2 WBR PT LOT 5

PIKE BAY RD

LIVERANCE BRUCE HARRY
765 WEST RD
CON 3 WBR PT LOT 6 PT LOT 7

CAMERON EMILY ELVA
CAMERON EARL ALEXANDER
384 PIKE BAY RD
CON 2 WBR LOT 6



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NO.	REVISION	BY	DATE

PROJECT: WEST ROAD BASE PLANS

TITLE: STA. 21 + 580 TO STA. 21 + 980

SCALE: H 1:500

DRAWN BY: MC

REVISION

DRWG NO.

0 55 of 55



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Appendix B Abbreviations, Terminology, and Principal Symbols Used

ABBREVIATIONS, TERMINOLOGY AND PRINCIPAL SYMBOLS USED IN REPORT AND BOREHOLE LOGS

Borehole & Test Pit Logs

Sampling method

AA	Auger Sample	W	Washed Sample
SS	Split Spoon Sample	HQ	Rock Core (63.5mm diam.)
ST	Thin Walled Shelby Tube	NQ	Rock Core (47.5mm diam.)
BS	Block Sample	BQ	Rock Core (36.5mm diam.)

In-Situ Soil Testing

Standard Penetration Test (SPT), “N” value is the number of blows required to drive a 51mm outside diameter split barrel sampler into the soil a distance of 300 mm with a 63.5kg weight free falling a distance of 760mm after an initial penetration of 150mm has been achieved. The SPT, “N” value is qualitative term used to interpret the compactness condition of cohesion less soils and is used only as a very approximation to estimate the consistency and undrained shear strength of cohesive soils.

Dynamic Cone Penetration Test (DCPT) is the number of blows required to drive a cone with a 60 degree apex attached to “A” size drill rods continuously into the soil for each 300mm penetration with a 63.5 kg weight free falling a distance of 760mm.

Cone Penetration Test (CPT) is an electronic cone point with a 10 cm² base area with a 60 degree apex pushed through the soil at a penetration rate of 2cm/s.

Field Vane Test (FVT) consists of a vane blade, a set of rods and torque measuring apparatus used to determine the undrained shear strength of cohesive soils.

Soil Descriptions

The soil descriptions and classifications are based on an expanded Unified Soil Classification System (USCS). The USCS classifies soils on the basis of engineering properties. The system divides soils into three major categories; coarse grained and highly organic soils. The soil is then subdivided based on either gradation or plasticity characteristics. The classification excludes particles larger than 75mm. To aid in quantifying material amounts by weight within the respective grain size fractions the following terms have been included to expand the USCS:

Soil Classification		Terminology	Proportion
Clay	<0.002 mm		
Silt	0.002 to 0.06 mm	“trace”, trace sand, etc.	1% to 10%
Sand	0.075 to 4.75 mm	“some”, some sand, etc.	10% to 20%
Gravel	4.75 to 75 mm	Adjective, sandy, gravelly, or (with)	20% to 35%
Cobbles	75 to 200 mm	and, and gravel, and silt, etc.	>35%
Boulders	>200 mm	noun, Sand, Gravel, Silt, etc.	>35% and main fraction

Notes:

- Soil properties, such as strength, gradation, plasticity, structure, etcetera, dictate the soils engineering behaviour over grain size fractions;
- With the exception of soil samples tested for grain size distribution or plasticity, all soil samples have been classified based on visual and tactile observations. The accuracy of visual and tactile observation is not sufficient to differentiate between changes in soil classification or precise grain size and is therefore an approximate description.

The following table outlines the qualitative terms used to describe the relative density condition of cohesionless soil:

Cohesionless Soil	
Compactness Condition	SPT N-Index (blows per 300 mm)
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	> 50

The following table outlines the qualitative terms used to describe the consistency of cohesive soils related to undrained shear strength and SPT, N-Index:

Cohesive Soil		
Consistency	Undrained Shear Strength (kPa)	SPT N-Index (blows per 300 mm)
Very soft	<12	<2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	>200	>30

Note: Utilizing the SPT, N-value to correlate the consistency and undrained shear strength of cohesive soils is only very approximate and needs to be used with caution.

Soil & Rock Physical Properties

General

W	Natural water content or moisture content within the soil sample
γ	Unit weight
γ'	Effective unit weight
γ_d	Dry unit weight
γ_{sat}	Saturated unit weight
ρ	Density
ρ_s	Density of solid particles
ρ_w	Density of water
ρ_d	Dry density
ρ_{sat}	Saturated density
e	Void ratio
n	Porosity
S_r	Degree of saturation
E_{50}	Strain of 50% maximum stress (cohesive soil)

Consistency

W	Liquid limit
W_p	Plastic limit
I_p	Plasticity limit
W_s	Shrinkage limit
I_L	Liquidity index
I_c	Consistency index
e_{max}	Void ratio in loosest state
e_{min}	Void ratio in densest state
I_D	Density index (formerly relative density)

Shear Strength

C_u, S_u	Undrained shear strength parameter (total stress)
C'_d	Drained shear strength parameter (effective stress)
r	Remolded shear strength
τ_p	Peak residual shear strength
τ_r	Residual shear strength
ϕ'	Angle of interface friction, coefficient of friction = $\tan \phi'$

Consolidation (One Dimensional)

Cc	Compression index (normally consolidated range)
Cr	Recompression index (over consolidated range)
Cs	Swelling index
mv	Coefficient of volume change
cv	Coefficient of consolidation
Tv	Time factor (vertical direction)
U	Degree of consolidation
s'_o	Overburden pressure
s'_p	Reconsolidation pressure (most probable)
OCR	Overconsolidation ratio

Permeability

The following table outlines the terms used to describe the degree of permeability of soil and common soil types associated with the permeability rates:

Permeability (cm/s)	Degree of Permeability	Common Associated Soil Type
$>10^{-1}$	Very High	Clean Gravel
10^{-1} to 10^{-3}	High	Clean Sand, Clean Sand and Gravel
10^{-3} to 10^{-5}	Medium	Fine Sand to Silty Sand
10^{-5} to 10^{-7}	Low	Silt and Clayey Silt (low plasticity)
$<10^{-7}$	Practically Impermeable	Silty Clay (medium to high plasticity)

Rock Coring

Rock Quality Designation (RQD) is an indirect measure of the number of fractures within a rock mass, Deere et al. (1967). It is the sum of sound pieces of rock core equal to or greater than 100 mm recovered from the core run, divided by the total length of the core run, expressed as a percentage. If the core section is broken due to mechanical or handling, the pieces are fitted together and if 100 mm or greater included in the total sum.

RQD is calculated as follows:

$$\text{RQD (\%)} = \frac{\sum \text{Length of core pieces} > 100 \text{ mm} \times 100}{\text{Total length of core run}}$$

The following is the Classification of Rock with Respect to RQD Value:

RQD Classification	RQD Value (%)
Very poor quality	<25
Poor quality	25 to 50
Fair quality	50 to 75
Good quality	75 to 90
Excellent quality	90 to 100

Appendix C Summary and Borehole Logs

Borehole Summary

Borehole No.	Northing (m)	Easting (m)	Surface Elevation (m)	Asphalt Thickness (mm)	Granular Base/Subbase Thickness (mm)	Granular Base Equivalency (GBE) thickness (mm)
1	4953062.5	479473.6	193.63	60	260	294
2	4953295.3	479460.7	192.51	80	490	488
3	4953468.9	479459.6	192.15	20	530	395
4	4953650	479448.3	192.74	30	420	341
5	4953863	479446.2	192.20	25	390	311
6	4954031.5	479434.9	192.07	40	390	341
7	4954263.5	479431.3	192.29	30	490	388
8	4954435.6	479419.4	193.32	40	350	315
9	4954663.5	479415.5	194.00	30	450	362
10	4954862.2	479401.4	191.48	45	410	365
11	4955073	479396	191.38	100	310	408
12	4955223.8	479383.6	191.72	70	640	569
13	4955429.8	479377.8	190.71	100	660	642
14	4955619	479363.1	191.01	80	620	575
15	4955810.5	479345.6	191.32	120	500	575
16	4956016.8	479278.6	192.08	80	400	428
17	4956195.7	479224.1	190.63	100	590	595
18	4956392.3	479153.9	190.63	50	630	522
19	4956577.5	479096.9	190.38	70	550	509
20	4956772.6	479026.9	190.70	60	550	489
21	4956955.3	478970.7	190.75	70	550	509
22	4957140.3	478904	190.83	60	550	489
23	4957330	478837	190.50	20	480	362
24	4957510.5	478762.9	189.49	40	660	522
25	4957715.1	478690.8	189.09	50	840	663
26	4957882.2	478621.9	188.74	50	770	616
27	4958079.8	478551.4	188.88	60	640	549
28	4958249	478483.5	188.46	20	470	355
29	4958435.3	478419.4	187.08	55	620	525
30	4958630.9	478342	187.16	40	790	609
31	4958807.7	478281.4	187.27	50	890	696
32	4959002.1	478203.7	187.34	60	820	669
33	4959186.5	478141	187.26	40	760	589

34	4959376.9	478065.9	187.55	25	660	492
35	4959558.3	478003.5	188.11	100	820	749
36	4959757.4	477925.4	187.55	40	780	603
37	4959934.2	477864.6	187.98	140	290	474
38	4960111.9	477791.9	187.94	40	470	395
39	4960324.9	477740.2	186.69	50	590	495
40	4960491.6	477789.2	186.71	45	540	452
41	4960693	477751.5	186.26	20	280	228
42	4960844.5	477699.5	185.52	50	380	355
43	4961080.4	477664.9	184.23	40	380	335
44	4961243.9	477634.9	185.67	55	370	358
45	4961460.8	477586.8	184.88	30	350	295
46	4961679.8	477516.2	183.88	25	540	412
47	4961834.9	477462	183.31	45	590	485
48	4962043.3	477355.8	183.01	40	940	710
49	4962196.8	477282.1	182.43	45	690	552
50	4962350.5	477186.8	182.18	20	760	549
51	4962547.9	477124.6	182.64	40	520	428
52	4962734.7	477056.7	181.68	25	870	633
53	4962929.5	476983.1	180.61	20	810	583
54	4963090.7	476909.7	180.81	45	610	499
55	4963275.8	476795	181.22	30	570	442
56	4963396.8	476685.1	181.08	20	380	295
57	4963562.4	476556.6	181.75	35	540	432
58	4963681.2	476687.6	183.25	0	910	610
59	4963744.8	476868.8	184.73	0	1060	710
60	4963817.7	477065.4	186.72	0	690	462
61	4963884.6	477251.7	188.47	0	330	221
62	4963928.5	477370.3	188.07	0	800	536
63	4964006.8	477594.4	189.64	0	790	529
64	4964074.3	477778.3	190.84	0	810	543
65	4964146.3	477979.5	193.93	0	260	174
66	4964213.4	478162.4	193.26	0	890	596
67	4964281.6	478366.9	193.77	0	1000	670
68	4964341.7	478542.6	194.06	0	670	449
69	4964456.5	478701.1	194.99	0	690	462
70	4964601.3	478835.6	196.40	0	820	549
71	4964742.8	478969.3	195.16	0	610	409
72	4964895.6	479111.4	195.52	0	680	456
73	4965034	479193.4	198.82	0	540	362
74	4965154.6	479086.8	200.45	0	914	612

75	4965208.4	478870.5	201.89	0	838	561
76	4965248.9	478684.5	204.17	0	590	395
77	4965188.8	478495.6	203.53	0	500	335
78	4965123.3	478315.5	203.02	0	400	268
79	4965179.8	478170.2	200.24	0	1067	715
80	4965361.5	478104.8	200.67	0	965	647
81	4965565.4	478034.4	201.05	0	640	429
82	4965739.5	477971.3	204.88	0	180	121
83	4965929.8	477904.5	200.83	0	510	342
84	4966117.8	477836.6	197.83	0	630	422
85	4966318.4	477768.6	198.66	0	280	188
86	4966497.3	477705.2	200.14	0	360	241
87	4966673.1	477643.6	199.09	0	559	375
88	4966864	477574.6	202.35	0	560	375
89	4967057.4	477505.8	198.62	0	406	272
90	4967268.3	477431.4	197.66	0	570	382
91	4967438.9	477368.7	194.69	0	600	402
92	4967609.2	477307.9	193.95	0	810	543
93	4967802.3	477241.3	193.90	0	390	261
94	4967986.6	477174.3	193.51	0	460	308
95	4968176.6	477107.1	192.85	0	490	328
96	4968309.1	477059.4	192.75	0	610	409
97	4968382.8	477034.2	192.44	0	1080	724
98	4968558.1	476972.2	194.18	0	1016	681
99	4968732.8	476910.4	192.92	0	720	482
100	4968968	476826.4	196.69	0	210	141
101	4969136.8	476768.9	198.85	0	470	315
102	4969298.5	476708.9	197.82	0	1473	987
103	4969505.7	476635.8	203.03	0	1219	817
104	4969672.9	476575	201.83	0	570	382
105	4969883.5	476501.7	205.05	0	420	281
106	4970059.8	476437.3	204.93	0	680	456
107	4970255.1	476365.7	199.12	0	790	529
108	4970430.6	476301.3	196.99	0	330	221
109	4970606.5	476239.4	194.24	0	770	516
110	4970788	476175	193.43	0	670	449

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	193.63										
			60mm Asphalt											
			260mm Granular Base / Sub-base	193.31										
		1	Sand, Fine Grained, Trace Gravel, Loose	192.11	1	SS	538	9		5				
		2	Sand, Fine To Medium Grained, Compact, Brown, Moist											
		3		190.58	2	SS		19		18.4				
			End of Borehole											
		4												

Drilled By: CMT Engineering

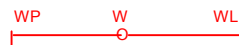
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	192.51										
			80mm Asphalt											
			490mm Granular Base / Sub-base	191.94										
		1	Sand, Fine To Medium Grained, Loose, Brown, Moist	190.99	1	SS	-	9						
		2	Sand, Coarse Grained, With Gravel, Very Dense, Brown, Moist		2	SS	-	100						
		3	End of Borehole	189.46										
		4												

Drilled By: CMT Engineering

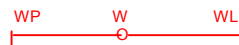
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

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WH - Weight Of Hammer



Datum:

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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																		
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)								
																					Grain Size (%)								
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si		
										10 20 30 40 50 60 70 80 90																			
		0	Geodetic Ground Elevation	192.15																									
			20mm Asphalt																										
			530mm Granular Base / Sub-base	191.60															5.8										
		1	Sand, Fine Grained, Trace Gravel (Granular "A"), Compact, Brown, Moist	190.63	1	SS	-	18											11.1						Water Level @0.914m				
		2	Coarse Sand & Gravel, Dense, Brown, Moist																										
		3		189.10	2	SS	-	32																					
			End of Borehole																										
		4																											

Drilled By: CMT Engineering

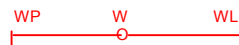
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
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 NQ - Rock Core
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 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
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 WH - Weight Of Hammer



Datum:

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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	192.74										
			30mm Asphalt											
			420mm Granular Base / Sub-base	192.29										
		1	Sand, Fine Grained, Trace Gravel, Some Topsoil, Very Loose, Brown, Moist	191.22	1	SS	-	3						
		2	Coarse Sand & Gravel, Very Dense, Brown, Moist		2	SS	-	68						
		3	End of Borehole	189.69										
		4												

Drilled By: CMT Engineering

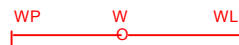
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
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+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
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○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	192.20										
			25mm Asphalt											
			390mm Granular Base / Sub-base	191.78										
		1	Sand, Fine Grained, Trace Gravel, Very Loose, Brown, Moist	190.68	1	SS	-	3						
		2	Sand, Medium To Fine Grained, Loose, Brown, Moist		2	SS	-	7						
		3	End of Borehole	189.15										
		4												

Drilled By: CMT Engineering

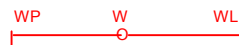
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
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TWS - Thin Walled Shelby Tube
BS - Block Sample
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WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
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w - Wash
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Standard Penetration Resistance Blows / 0.3m		Water Content Data (%)		Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	25	50	75	100	125	150	175	200	Grain Size (%)
									10	20	30	40	50	60	70	80	90
		0	Geodetic Ground Elevation	192.07													
			40mm Asphalt														
			390mm Granular Base / Sub-base	191.64													
		1	Sand, Medium To Coarse Grained, Trace Gravel, Compact, Brown, Moist	190.55	1	SS	-	18									
		2	Sand, Medium To Fine Grained, Trace Gravel, Loose, Brown, Moist		2	SS	-	7									
		3	End of Borehole	189.02													
		4															

Drilled By: CMT Engineering

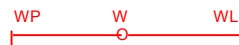
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
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Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

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SUBSURFACE PROFILE				SAMPLE				Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)			Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Standard Penetration Resistance Blows / 0.3m										Water Content Data (%)										Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Water Level @ 1.52m

Drilled By: CMT Engineering

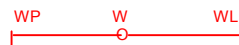
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
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+s Field Vane, S - Sensitivity
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○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Water Level @ 2.36m

Drilled By: CMT Engineering

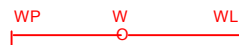
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

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 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)				
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si
										10 20 30 40 50 60 70 80 90										1020304050607080							
		0	Geodetic Ground Elevation	194.00																			No Water Encountered				
			30mm Asphalt																								
			450mm Granular Base / Sub-base	193.52															3.8								
		1	Sand, Fine Grained, Trace Gravel, Compact, Brown, Moist	192.48	1	SS	-	12						3.5													
		2	Sand, Medium To Coarse Grained, Trace Gravel, Compact, Brown, Moist																								
		3		190.95	2	SS	-	15						18.4				1.7 92.1 3.7 2.5									
			End of Borehole																								
		4																									

Drilled By: CMT Engineering

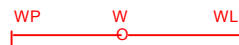
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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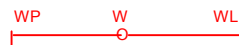
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

AS - Auger Sample
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	191.38										
			100mm Asphalt	191.28										
			310mm Granular Base / Sub-base	190.97										
		1	Sand, Fine Grained, Compact, Brown, Moist	189.86	1	SS	-	17						
		2	Sand, Medium To Coarse Grained, With Gravel, Compact, Brown, Moist		2	SS	-	33						
		3	End of Borehole	188.33										
		4												

Drilled By: CMT Engineering

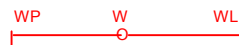
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Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Water Level @ 1.62m

Drilled By: CMT Engineering

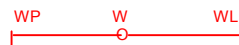
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

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Project: West Road Geotechnical Investigation

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Reviewed By: J.Black

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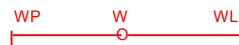
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Project No: 15-1068

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Site Location: Bryant Street

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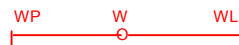
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

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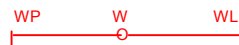
Drill Method: Split Spoon / Casing

Drill Date: June 23, 2015

Sample Type

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Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	
		0	Geodetic Ground Elevation	192.08					
			80mm Asphalt						
			400mm Granular Base / Sub-base	191.60					
		1	Sand, Fine Grained, With Trace Gravel & Some Coarse Ares, Compact, Brown, Moist	190.56	1	SS	-	25	
		2	Sand, Medium Grained, Very Loose, Brown, Moist		2	SS	-	2	
		3	End of Borehole	189.03					
		4							

Undrained Shear Strength
(Cu, kPa)

25 50 75 100 125 150 175 200

Standard Penetration Resistance
Blows / 0.3m

10 20 30 40 50 60 70 80 90

Water Content Data
(%)

10 20 30 40 50 60 70 80

Grain Size (%)

Gr Sa Si Cl

Water Level @ 1.37m

Drilled By: CMT Engineering

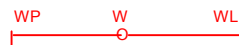
Drill Method: Split Spoon / Casing

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SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa) 25 50 75 100 125 150 175 200		Water Content Data (%) 10 20 30 40 50 60 70 80 90		Remarks						
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)					Blows / 0.3m	Grain Size (%) Gr Sa Si Cl					
		0	Geodetic Ground Elevation	190.63							Water Level @ 1.09m							
			100mm Asphalt	190.53														
			590mm Granular Base / Sub-base	189.94														
		1	Sand, Medium To Fine Grained, Trace Gravel, Compact, Brown, Moist	189.11	1	SS	-	27										
		2	Sand, Fine Grained, Trace Silt, Loose, Brown, Moist															
		3		187.58	2	SS	-	8										
			End of Borehole															
			4															

Drilled By: CMT Engineering

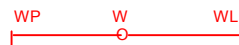
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

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W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks													
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)											
									△	△		Gr Sa Si Cl											
									25	50		75	100	125	150	175	200						
									Standard Penetration Resistance Blows / 0.3m														
									○	○													
									10	20	30	40	50	60	70	80	90						
		0	Geodetic Ground Elevation	190.63																			
		50mm Asphalt																					
			630mm Granular Base / Sub-base	189.95							19.4												
		1	Sand, Medium To Fine Grained, Trace Organics, Compact, Brown, Moist	189.11	1	SS	-	32			19.5	Water Level @ 1.3m											
		2	Sand, Fine Grained, Compact, Brown, Moist																				
		3		187.58	2	SS	-	11			23.7	.5 91.8 4.7 3											
			End of Borehole																				
		4																					

Drilled By: CMT Engineering

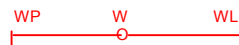
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	190.38										
			70mm Asphalt											
			550mm Granular Base / Sub-base	189.76										
		1	Sand, Medium To Fine Grained, Compact, Brown, Moist	188.86	1	SS	-	21						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3	End of Borehole	187.33										
		4												

Drilled By: CMT Engineering

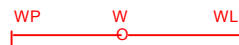
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	190.70										
			60mm Asphalt											
			550mm Granular Base / Sub-base	190.09										
		1	Sand, Fine Grained, Compact, Brown, Moist	189.18	1	SS	-	34						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3	End of Borehole	187.65										
		4												

Drilled By: CMT Engineering

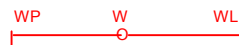
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)				
									Standard Penetration Resistance Blows / 0.3m																		
		0	Geodetic Ground Elevation	190.75																							
			70mm Asphalt																								
			550mm Granular Base / Sub-base	190.13															19.6								
		1	Sand, Fine Grained, Trace Clay & Silt, Compact, Brown, Moist	189.23	1	SS	-	33											11.2								
		2	Sand, Fine Grained, With Gravel & Hydrocarbon Ordour, Compact, Brown, Moist																								
		3		187.70	2	SS	-	110											9.2								
			End of Borehole																								
		4																									

Water Level @ 1.42m

Drilled By: CMT Engineering

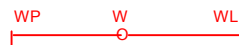
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	190.83										
			60mm Asphalt											
			550mm Granular Base / Sub-base	190.22										
		1	Sand, Fine Grained, Compact, Brown, Moist	189.31	1	SS	-	20						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3	End of Borehole	187.78										
		4												

Drilled By: CMT Engineering

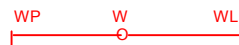
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	190.50										
			20mm Asphalt											
			480mm Granular Base / Sub-base	190.00										
		1	Sand, Fine Grained, With Trace Gravel, Compact, Brown, Moist	188.98	1	SS	-	11						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3	End of Borehole	187.45	2	SS	-	13						
		4												

Drilled By: CMT Engineering

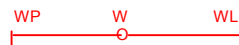
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

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○ - SPT(Standard Penetration Test)
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WH - Weight Of Hammer



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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

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Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Drilled By: CMT Engineering

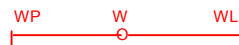
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Bryant Street

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	189.09										
			50mm Asphalt											
			840mm Granular Base / Sub-base	188.20						5.2				
		1	Sand, Fine Grained, With Trace Gravel, Compact, Brown, Moist	187.57	1	SS	-	13		25.5				Water Level @ 1.06m
		2	Sand, Medium To Fine Grained, Very Loose, Brown, Moist											
					2	SS	-	3		24.6				
		3	End of Borehole	186.04										
		4												

Drilled By: CMT Engineering

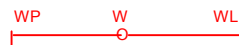
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Standard Penetration Resistance Blows / 0.3m										Water Content Data (%)										Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		0	Geodetic Ground Elevation	188.74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

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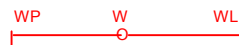
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	188.88										
			60mm Asphalt											
			640mm Granular Base / Sub-base	188.18										
		1	Sand, Fine Grained, With Organic Woody Debris, Very Loose, Brown, Moist	187.36	1	SS	-	3						
		2	Sand, Fine Grained, Very Loose, Brown, Wet											
		3	End of Borehole	185.83										
		4												

Drilled By: CMT Engineering

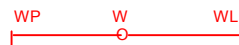
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
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+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
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○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project: West Road Geotechnical Investigation

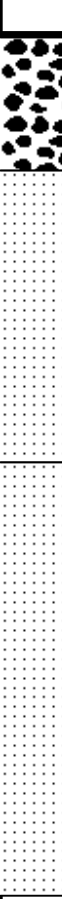

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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										10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		0	Geodetic Ground Elevation	188.46																		Water Level @ 1.37m																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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			470mm Granular Base / Sub-base	187.97																10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		1	Sand, Fine Grained, Trace Gravel, Very Loose, Brown, Moist	186.94	1	SS	-	3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Water Level @ 1.37m

Drilled By: CMT Engineering

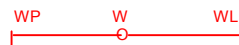
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)			
									Standard Penetration Resistance Blows / 0.3m															
		0	Geodetic Ground Elevation	187.08																				
			55mm Asphalt																					
			620mm Granular Base / Sub-base	186.40															7.4					
		1	Sand, Fine Grained, Compact, Dark Brown To Light Brown, Moist	185.56	1	SS	-	12																
		2	Sand, Fine Grained, Compact, Brown, Moist																					
		3																						
			End of Borehole	184.03																				
		4																						

Water Level @ 1.32m

Drilled By: CMT Engineering

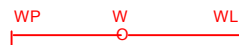
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT (Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks															
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)			
									Standard Penetration Resistance Blows / 0.3m																	
		0	Geodetic Ground Elevation	187.16																			Water Level @ 1.47m			
			40mm Asphalt																							
			790mm Granular Base / Sub-base	186.33														6.1								
		1	Sand, Fine Grained, With Gravel, Loose, Brown, Moist	185.64	1	SS	-	10											22.6							
		2	Sand, Fine Grained, Loose, Brown, Moist																							
		2	Sand, Fine Grained, Loose, Brown, Moist																							
		3		184.11	2	SS	-	7											24.6							
		3	End of Borehole																							
		4																								

Water Level @ 1.47m

Drilled By: CMT Engineering

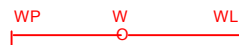
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks																					
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)												
									Standard Penetration Resistance Blows / 0.3m										Gr		Sa		Si		Cl								
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	187.27																													
			50mm Asphalt																														
			890mm Granular Base / Sub-base	186.33																													
		1	Sand, Fine Grained, Compact, Brown, Moist	185.75	1	SS	-	12																									
			Sand, Fine Grained, Trace Organics & Clay, Very Loose, Brown, Moist																														
		2																															
					2	SS	-	WH																									
		3	End of Borehole	184.22																													
		4																															

Water Level @ 1.98m

Drilled By: CMT Engineering

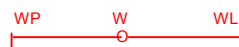
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks																					
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)												
									Standard Penetration Resistance Blows / 0.3m										Gr		Sa		Si		Cl								
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	187.34																													
			60mm Asphalt																														
			820mm Granular Base / Sub-base	186.46																													
		1	Sand, Medium To Fine Grained, Trace Gravel, Loose, Brown, Moist	185.82	1	SS	-	8																									
			Sand, Fine Grained, Compact, Brown, Wet																														
		2																															
		3		184.29	2	SS	-	28																									
			End of Borehole																														
		4																															

Drilled By: CMT Engineering

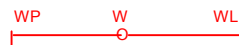
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	187.26										
			40mm Asphalt											
			760mm Granular Base / Sub-base	186.46						5.7				
		1	Sand, Fine Grained, Trace Gravel, Compact, Brown, Moist	185.74	1	SS	-	16		25.2				Water Level @ 1.07m
		2	Sand, Fine Grained, Compact, Brown, Wet											
					2	SS	-	12		25.1				
		3	End of Borehole	184.21										
		4												

Drilled By: CMT Engineering

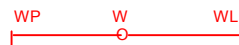
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	187.55										
			25mm Asphalt											
			660mm Granular Base / Sub-base	186.86										
		1	Sand, Fine Grained, Trace Gravel, Loose, Brown, Moist	186.03	1	SS	-	8						
		2	Sand, Fine Grained, Compact, Brown, Wet											
		3	End of Borehole	184.50										
		4												

Drilled By: CMT Engineering

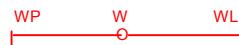
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation





Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks															
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)	Grain Size (%)							
																				Standard Penetration Resistance Blows / 0.3m							
									25	50	75	100	125	150	175	200	10	20		30	40	50	60	70	80	90	Gr
		0	Geodetic Ground Elevation	188.11																							
			100mm Asphalt	188.01																							
			820mm Granular Base / Sub-base	187.19																28.4 55 11.8 4.8							
		1	Sand, Fine Grained, Loose, Brown, Moist	186.59	1	SS	-	8													Water Level @ 1.32m						
		2	Sand, Fine Grained, Loose, Brown, Wet																								
		3	End of Borehole	185.06																							
		4																									

Drilled By: CMT Engineering

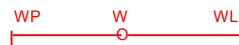
Drill Method: Split Spoon / Casing

Drill Date: June 24, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)										
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl		
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	187.55																													
			40mm Asphalt																														
			780mm Granular Base / Sub-base	186.73																													
		1	Sand, Fine Grained, Trace Gravel, Loose, Brown, Moist	186.03	1	SS	-	7																									
			Sand, Fine Grained, Compact, Brown, Wet																														
		2																															
		3		184.50	2	SS	-	15																									
			End of Borehole																														
		4																															

Drilled By: CMT Engineering

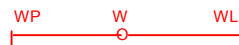
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Drilled By: CMT Engineering

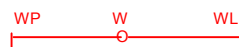
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH38

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE								Remarks																				
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)										
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl		
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80

Drilled By: CMT Engineering

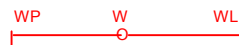
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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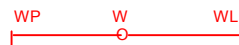
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT (Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Water Level @ 1.32m

Drilled By: CMT Engineering

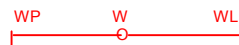
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	186.26										
			20mm Asphalt											
			280mm Granular Base / Sub-base	185.96										
		1	Sand, Medium To Fine Grained, Trace Gravel, Compact, Brown, Very Moist	184.74	1	SS	-	14						
		2	Sand, Fine To Medium Grained, Compact, Brown, Moist To Wet		2	SS	-	13						
		3	End of Borehole	183.21										
		4												

Drilled By: CMT Engineering

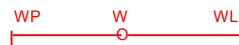
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
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WL - Liquid Limit
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+s Field Vane, S - Sensitivity
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○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project No: 15-1068

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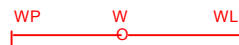
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

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○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project No: 15-1068

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Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																						
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)										
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl		
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	184.23																													
			40mm Asphalt																														
			380mm Granular Base / Sub-base	183.81																													
		1	Sand, Fine Grained, Loose, Light Brown, Moist	182.71	1	SS	-	7																									
		2	Sand, Fine Grained, Compact, Brown, Moist To Wet		2	SS	-	17																									
		3	End of Borehole	181.18																													
		4																															

Water Level @ 2.59m

Drilled By: CMT Engineering

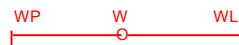
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
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WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

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○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

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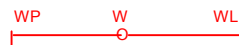
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH45

Project No: 15-1068

Project: West Road Geotechnical Investigation





Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE				Remarks												
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m			Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)							
									25	50	75	100		125	150	175	200	Gr	Sa	Si	Cl
									10	20	30	40		50	60	70	80				
		0	Geodetic Ground Elevation	184.88								No Water Encountered									
		30mm Asphalt																			
		350mm Granular Base / Sub-base	184.50																		
		Sand, Fine Grained, Loose, Light Brown, Moist		1	SS	-	10														
		Sand, Fine Grained, Compact, Light Brown, Moist		2	SS	-	13														
		3	End of Borehole	181.83																	
		4																			

Drilled By: CMT Engineering

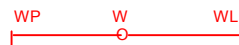
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
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 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

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SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Water Level @ 1.37m

Drilled By: CMT Engineering

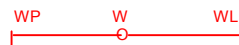
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
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 DCPT (Dynamic Cone Penetration)
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SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	183.31										
			45mm Asphalt											
			590mm Granular Base / Sub-base	182.67										
		1	Sand, Fine Grained, Very Loose, Brown, Moist	181.79	1	SS	-	4						
		2	Sand, Medium To Fine Grained, Loose, Brown, Moist		2	SS	-	5						
		3	End of Borehole	180.26										
		4												

Drilled By: CMT Engineering

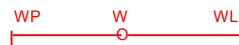
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

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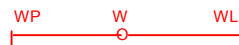
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

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SUBSURFACE PROFILE				SAMPLE						Remarks																			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)	Grain Size (%)									
									Standard Penetration Resistance Blows / 0.3m															Gr Sa Si Cl					
		0	Geodetic Ground Elevation	182.43																									
			45mm Asphalt																										
			690mm Granular Base / Sub-base	181.69													8												
		1	Sand, Fine Grained, Very Loose, Light Brown, Moist	180.91	1	SS	-	3									17.1												
		2	Sand, Fine Grained, Trace Gravel, Loose, Brown, Wet																			Water Level @ 2.08m							
		3		179.38	2	SS	-	5									23.8					1.1 90.5 5.2 3.2							
			End of Borehole																										
		4																											

Drilled By: CMT Engineering

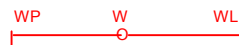
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SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Water Level @ 1.55m

Drilled By: CMT Engineering

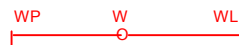
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	182.64										
			40mm Asphalt											
			520mm Granular Base / Sub-base	182.08										
		1	Sand, Fine Grained, Loose, Light Brown, Moist	181.12	1	SS	-	6						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3	End of Borehole	179.59	2	SS	-	18						
		4												

Drilled By: CMT Engineering

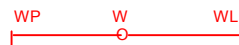
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	181.68										
			25mm Asphalt											
			870mm Granular Base / Sub-base	180.78						8.2				
		1	Sand, Fine Grained, Compact, Light Brown, Moist	180.16	1	SS	-	11		4.3		0	88.1	9.6 2.3
		2	Sand, Fine Grained, Compact, Brown, Moist											
					2	SS	-	30		24.9				
		3	End of Borehole	178.63										
		4												

Drilled By: CMT Engineering

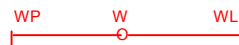
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Borehole Log: BH53

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE																		Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80	90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

Drilled By: CMT Engineering

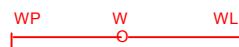
Drill Method: Split Spoon / Casing

Drill Date: June 25, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH54

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%) Gr Sa Si Cl
									25 50 75 100 125 150 175 200		
									Standard Penetration Resistance Blows / 0.3m		
									10 20 30 40 50 60 70 80 90		
		0	Geodetic Ground Elevation	180.81							
			45mm Asphalt								
			610mm Granular Base / Sub-base	180.15						3.9	
		1	Sand, Fine Grained, Compact, Light Brown, Moist	179.29	1	SS	-	11		16.2	
		2	Sand, Fine Grained, Compact, Light Brown, Moist								
		3	End of Borehole	177.76	2	SS	-	12		23	
		4									

No Water Encountered

Drilled By: CMT Engineering

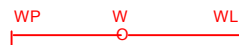
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	181.22										
			30mm Asphalt											
			590mm Granular Base / Sub-base	180.60										
		1	Sand, Medium To Fine Grained, Compact, Brown, Moist	179.70	1	SS	-	16						
		2	Sand, Fine Grained, Trace Silt, Compact, Brown, Moist											
		3	End of Borehole	178.17										
		4												

Drilled By: CMT Engineering

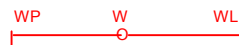
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)				
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si
		0	Geodetic Ground Elevation	181.08																			No Water Encountered				
			20mm Asphalt																								
			380mm Granular Base / Sub-base	180.68															6.8								
		1	Sand, Medium To Fine Grained, Compact, Brown, Moist	179.56	1	SS	-	14												20.2							
		2	Sand, Fine Grained, Trace Silt, Compact, Brown, Moist																								
		3																	21.8								
			End of Borehole	178.03																			.3 81.8 13 4.9				
		4																									

Drilled By: CMT Engineering

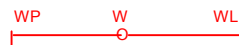
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Huron Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Water Level @ 1.8m

Drilled By: CMT Engineering

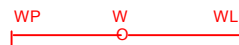
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation




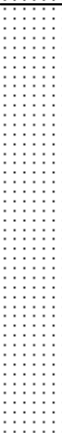

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)														
									25	50		75	100	125	150	175	200	Grain Size (%)								
									Standard Penetration Resistance Blows / 0.3m								Grain Size (%)									
									10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80	
		0	Geodetic Ground Elevation	183.25																						
			910mm Granular Base / Sub-base	182.34																						
		1	Sand, Fine Grained, Trace Silt, Loose, GreyTo Brown, Moist	181.73	1	SS	25	10																		
		2	Sand, Fine Grained, Loose, Brown, Moist To Wet																							
					2	SS	-	6																		
		3	End of Borehole	180.20																						
		4																								

Drilled By: CMT Engineering

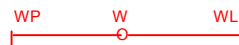
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	184.73										
		1	1060mm Granular Base / Sub-base	183.67										
			Gravel With Fine Grained Sand, Trace Organic / Woody Debris, Compact, Brown To Dark Brown, Moist	183.21	1	SS	25	14						
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3		181.68	2	SS	-	11						
			End of Borehole											
		4												

Drilled By: CMT Engineering

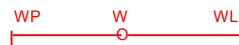
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%) Gr Sa Si Cl
									25 50 75 100 125 150 175 200		
									Standard Penetration Resistance Blows / 0.3m		
									10 20 30 40 50 60 70 80 90	1020304050607080	
		0	Geodetic Ground Elevation	186.72							
			690mm Granular Base / Sub-base	186.03						7.2	
		1	Sand, Trace Gravel, Loose, Brown, Moist	185.20	1	SS	-	6		7.2	Water Level @ 1.04m
		2	Sand, Fine Grained, Very Loose, Brown, Moist To Wet								
		3		183.67	2	SS	-	3		27.5	
			End of Borehole								
		4									

Drilled By: CMT Engineering

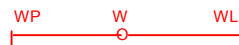
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Drilled By: CMT Engineering

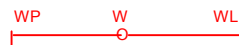
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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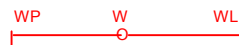
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
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WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	189.64										
			790mm Granular Base / Sub-base	188.85						6.2				
		1	Sand, Fine Grained, With Trace Silt & Organics, Loose, Brown, Moist	188.12	1	SS	-	5		29.5				
		2	Sand, Fine Grained, Compact, Brown, Moist											
		3		186.59	2	SS	-	12		26.4				
			End of Borehole											
		4												

Drilled By: CMT Engineering

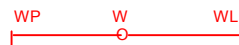
Drill Method: Split Spoon / Casing

Drill Date: June 30, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

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○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation




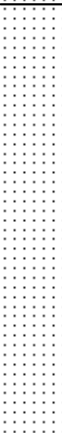

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																							
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)													
									Standard Penetration Resistance Blows / 0.3m																									
										25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	190.84																														
			810mm Granular Base / Sub-base	190.03															13.8															
		1	Sand, Fine Grained, Compact, Brown, Very Moist	189.32	1	SS	-	18												26.7		Water Level @ 1.07m												
		2	Sand, Medium To Fine Grained, Compact, Brown, Moist																	24.2														
		3	End of Borehole	187.79																														
		4																																

Drilled By: CMT Engineering

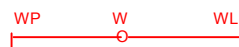
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	193.93										
			260mm Granular Base / Sub-base	193.67										
		1	Sand, Fine Grained, Loose, Brown, Moist	192.41	1	SS	-	9						
		2	Sand, Fine Grained, Trace Silt, Loose, Brown, Moist											
		3	End of Borehole	190.88										
		4												

Drilled By: CMT Engineering

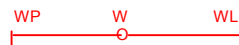
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
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○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Drilled By: CMT Engineering

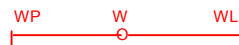
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation




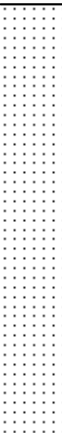

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE								Remarks																					
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)											
									Standard Penetration Resistance Blows / 0.3m																									
										25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	193.77																			Water Level @ 1.4m											
			1000mm Granular Base / Sub-base	192.77															11.2															
		1	Sand, Fine Grained, Loose, Brown, Moist	192.25	1	SS	-	8												19.5														
		2	Sand, Fine Grained, Loose, Brown, Very Moist																	22.1														
		3								End of Borehole	190.72																							
			4																															

Drilled By: CMT Engineering

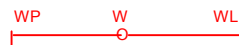
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
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w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Water Level @ 1.62m

Drilled By: CMT Engineering

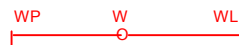
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
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 WL - Liquid Limit
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 +s Field Vane, S - Sensitivity
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 ○ - SPT (Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	194.99										
			690mm Granular Base / Sub-base	194.30										
		1	Sand, Fine Grained, Loose, Light Brown, Moist	193.47	1	SS	-	10						
		2	Bedrock Refusal @ 2.29m	192.70	2	SS	-	>100						
			End of Borehole											
		3												
		4												

Drilled By: CMT Engineering

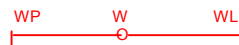
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
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TWS - Thin Walled Shelby Tube
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- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation


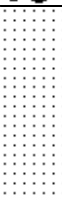


Site Location: Howdenvale Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks										
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)									
									25	50		75	100	125	150	175	200	Gr	Sa	Si	Cl
									Standard Penetration Resistance Blows / 0.3m												
10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80					
		0	Geodetic Ground Elevation	196.40																	
			820mm Granular Base / Sub-base	195.58								5.2									
		1	Sand, Coarse Grained, With Gravel, Loose, Brown, Moist	194.88	1	SS	-	8				20.8					No Water Encountered				
		2	Clayey Silt, With Coarse Grain Sand & Trace Gravel, Compact, Brown, Moist																		
														</							

Drilled By: CMT Engineering

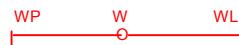
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
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WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Borehole Log: BH71

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)										Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Drilled By: CMT Engineering

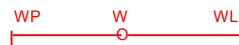
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Howdenvale Road

Client: Bruce County

Borehole Log: BH72

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%) Gr Sa Si Cl
									25 50 75 100 125 150 175 200		
									Standard Penetration Resistance Blows / 0.3m		
									10 20 30 40 50 60 70 80 90		
		0	Geodetic Ground Elevation	195.52							
			680mm Granular Base / Sub-base	194.84							
		1	Silty Sand, Trace Clay & Gravel, Very Loose, Brown, Moist		1	SS	-	3	○		
		2	End of Borehole	193.49							
		3									
		4									

Drilled By: CMT Engineering

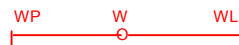
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
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NQ - Rock Core
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+s Field Vane, S - Sensitivity
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○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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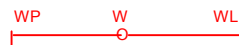
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH74

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%) Gr Sa Si Cl
									25 50 75 100 125 150 175 200		
									Standard Penetration Resistance Blows / 0.3m		
									10 20 30 40 50 60 70 80 90		
		0	Geodetic Ground Elevation	200.45							
			914mm Granular Base / Sub-base							23	
				199.54							
		1	End of Borehole								
		2									
		3									
		4									

Drilled By: CMT Engineering

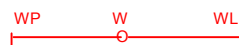
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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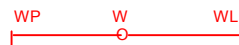
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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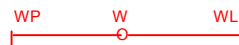
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation


Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																												
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)										Grain Size (%)									
									Standard Penetration Resistance Blows / 0.3m																													
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	203.53																									Bedrock Visible On Shoulder of Road In Woods No Water Encountered Bedrock Refusal @ 0.63m									
			630mm Granular Base / Sub-base	202.90															4.7																			
			End of Borehole																																			
		1																																				
		2																																				
		3																																				
		4																																				

Drilled By: CMT Engineering

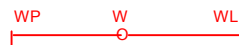
Drill Method: Split Spoon / Casing

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Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation


Site Location: Daddy Weir Road

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			400mm Granular Base / Sub-base	202.62	1	SS	-	84																		No Water Encountered																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
			Sand, Fine Grained, Trace Fragments Weathered Bedrock, Compact, Brown, Moist																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

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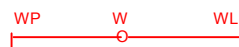
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
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○ - SPT(Standard Penetration Test)
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Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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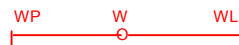
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE								Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Drilled By: CMT Engineering

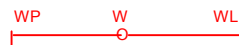
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH81

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%) Gr Sa Si Cl
									25 50 75 100 125 150 175 200		
									Standard Penetration Resistance Blows / 0.3m		
									10 20 30 40 50 60 70 80 90	1020304050607080	
		0	Geodetic Ground Elevation	201.05							
			640mm Granular Base / Sub-base	200.41						8.6	
			Bedrock Refusal @ 0.914m	200.14							
		1	End of Borehole								
		2									
		3									
		4									

Drilled By: CMT Engineering

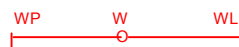
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Remarks							
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)			Blows / 0.3m					
								Undrained Shear Strength (Cu, kPa)			Water Content Data (%)	Grain Size (%)			
								25	50			75	100	125	150

Drilled By: CMT Engineering

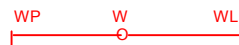
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	200.83										
			510mm Granular Base / Sub-base	200.32										
		1	Sand, Medium To Coarse Grained, With Gravel & Trace Clay, Compact, Brown, Moist	199.31	1	SS	-	26						
		2	Silt, Trace Gravel, Sand & Clay, Dense, Grey To Brown, Moist											
		3		197.78	2	SS	-	56						
			End of Borehole											
		4												

Drilled By: CMT Engineering

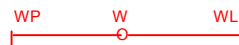
Drill Method: Split Spoon / Casing

Drill Date: July 1, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation


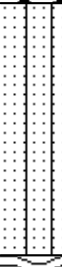
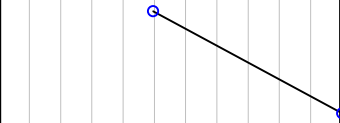

Site Location: Daddy Weirr Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)					
																					Standard Penetration Resistance Blows / 0.3m				Gr Sa Si Cl	
		0	Geodetic Ground Elevation	197.83																						
			630mm Granular Base / Sub-base	197.20															12		No Water Encountered					
		1	Sandy Silt, Trace Clay, Trace Weathered Bedrock, Compact, Brown, Moist	196.31	1	SS	-	45											6.3		Bedrock Refusal @ 1.58m					
			Bedrock Refusal @ 1.58m																							
			End of Borehole																							
		2																								
		3																								
		4																								

Drilled By: CMT Engineering

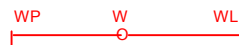
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation



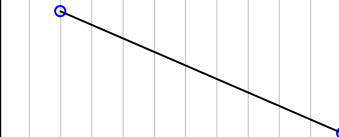
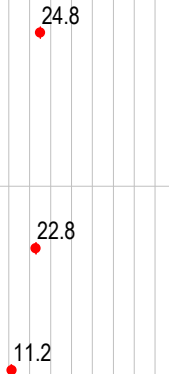

Site Location: Daddy Weirr Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)													
									△	△		Gr Sa Si Cl													
									25	50		75	100	125	150	175	200								
									Standard Penetration Resistance Blows / 0.3m																
									○	○															
									10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	198.66																					
		280mm Granular Base / Sub-base	198.38																						
		Silty Sand, With Weathered Bedrock & Trace Gravel, Compact, Brown, Moist To Dry	197.14	1	SS	-	18																		
				2	SS	-	>100																		
				Fine Sand & Silt With Weathered Bedrock & Fractured Pieces	196.88																				
		2	End of Borehole																						
		3																							
		4																							

Drilled By: CMT Engineering

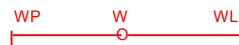
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH86

Project No: 15-1068

Project: West Road Geotechnical Investigation


Site Location: Daddy Weirr Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks																	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)													
									Standard Penetration Resistance Blows / 0.3m														Gr	Sa	Si	Cl										
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80			
		0	Geodetic Ground Elevation	200.14																																
			360mm Granular Base / Sub-base	199.78																																
			Sand, With Gravel & Weathered Bedrock Fines, Brown, Moist To Dry	199.23																																
	1	End of Borehole																																		
		2																																		
		3																																		
		4																																		

Drilled By: CMT Engineering

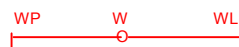
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH87

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%)
									Standard Penetration Resistance Blows / 0.3m		
									25 50 75 100 125 150 175 200	1020304050607080	Gr Sa Si Cl
		0	Geodetic Ground Elevation	199.09							
			558mm Granular Base / Sub-base	198.53						23.1	
			End of Borehole								
		1									No Water Encountered
		2									
		3									
		4									

Drilled By: CMT Engineering

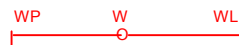
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Drilled By: CMT Engineering

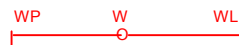
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE								Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Drilled By: CMT Engineering

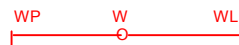
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH90

Project No: 15-1068

Project: West Road Geotechnical Investigation


Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)													
									△	△															
									25	50		75	100	125	150	175	200								
									Standard Penetration Resistance Blows / 0.3m																
									○	○			Gr	Sa	Si	Cl									
									10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	197.66																					
			570mm Granular Base / Sub-base	197.09																					
			Bedrock Refusal @ 0.686m	196.96																					
			End of Borehole																						
		1																							
		2																							

Drilled By: CMT Engineering

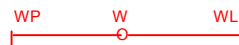
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Drilled By: CMT Engineering

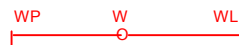
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Wier Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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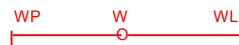
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

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Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Grain Size (%)			
											Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	193.80										
			390mm Granular Base / Sub-base	193.41										
		1	Sand, Fine Grained, Loose, Brown, Moist	192.28	1	SS	-	5						
		2	Sand, Fine Grained, Loose, Brown, Moist											
		3	End of Borehole	190.75	2	SS	-	9						
		4												

Drilled By: CMT Engineering

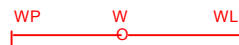
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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

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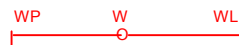
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Duddywier Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Remarks			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Standard Penetration Resistance Blows / 0.3m		Gr	Sa	Si	Cl
		0	Geodetic Ground Elevation	192.85										
			490mm Granular Base / Sub-base	192.36										
		1	Sand & Gravel, Loose, Brown, Moist	191.33	1	SS	-	6						
		2	Sand, Fine Grained, Loose, Brown, Moist											
		3		189.80	2	SS	-	6						
			End of Borehole											
		4												

Drilled By: CMT Engineering

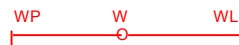
Drill Method: Split Spoon / Casing

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Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks																							
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)		Grain Size (%)												
									Standard Penetration Resistance Blows / 0.3m										Gr		Sa		Si		Cl								
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	192.75																													
			990mm Granular Base / Sub-base																														
		1		191.76																													
					1	SS	25	5																									
		2	Sand & Gravel, Loose, Brown, Moist																														
		3		189.70																													
			Sand, Fine Grained, Trace Organics, Compact, Brown, Moist		3	SS	100	12																									
				188.94																													
		4	Sand, Fine Grained, Weathered Bedrock, Dense, Brown, Very Wet		4	SS	25	>100																									
				188.33																													
			End of Borehole																														

Drilled By: CMT Engineering

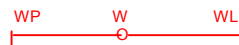
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

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Datum:

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Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

Client: Bruce County

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No Water Encountered

Drilled By: CMT Engineering

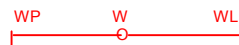
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

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Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation



Site Location: Daddy Weir Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks							
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)			
									Standard Penetration Resistance Blows / 0.3m																	
		0	Geodetic Ground Elevation	194.18																			No Water Encountered			
			1010mm Granular Base / Sub-base															7.7								
		1	Gravel With Sand	193.17															7							
			End of Borehole	193.06																						
		2																					Bedrock Refusal @ 1.12m			
		3																								
		4																								

Drilled By: CMT Engineering

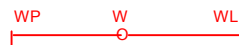
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Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: Daddy Weir Road

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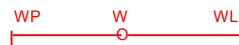
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH100

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

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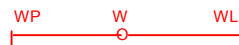
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WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road



Client: Bruce County

Borehole Log: BH101

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE				Remarks														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)			Blows / 0.3m												
								Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				
								Standard Penetration Resistance Blows / 0.3m														
										Grain Size (%)												
										Gr	Sa	Si	Cl									
		0	Geodetic Ground Elevation	198.85															No Water Encountered Bedrock Refusal @ 1.52m			
			470mm Granular Base / Sub-base	198.38																		
		1	Sand, Fine Grained, With Weathered Bedrock & Fines, Compact, Brown To Light Brown, Dry	197.33	1	SS	-	22														
			End of Borehole																			
			2																			
		3																				
		4																				

Drilled By: CMT Engineering

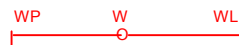
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Borehole Log: BH102

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)					Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Drilled By: CMT Engineering

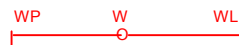
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Drilled By: CMT Engineering

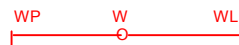
Drill Method: Split Spoon / Casing

Drill Date: July 2, 2015

Sample Type

AS - Auger Sample
SS - Split Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH104

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE						Remarks	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)	Water Content Data (%)	Grain Size (%)
									Standard Penetration Resistance Blows / 0.3m		
									25 50 75 100 125 150 175 200	1020304050607080	Gr Sa Si Cl
		0	Geodetic Ground Elevation	201.83							
			570mm Granular Base / Sub-base	201.26						31	No Water Encountered
			Sand & Gravel	200.83							
		1	End of Borehole								Bedrock Refusal @ 1.0m
		2									
		3									
		4									

Drilled By: CMT Engineering

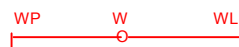
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

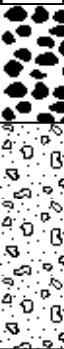
Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																											
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)										Grain Size (%)									
																													Standard Penetration Resistance Blows / 0.3m				Gr				Sa	
									25 50 75 100 125 150 175 200										10 20 30 40 50 60 70 80 90										1020304050607080									
		0	Geodetic Ground Elevation	205.05																									No Water Encountered									
			420mm Granular Base / Sub-base	204.63																																		
			Sand, With Gravel & Fractured Pieces Of Rock, Dry	203.84																																		
			End of Borehole																																			
		2																											Bedrock Refusal @ 1.219m									
		3																																				
		4																																				

Drilled By: CMT Engineering

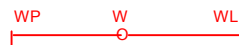
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)										Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Drilled By: CMT Engineering

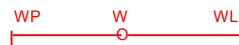
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
 SS - Split Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 ○ - SPT(Standard Penetration Test)
 ○ - DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation



Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE								Remarks																					
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)								Water Content Data (%)				Grain Size (%)												
									Standard Penetration Resistance Blows / 0.3m																								
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80
		0	Geodetic Ground Elevation	199.12																					18.1	53.1	22.3	6.5					
		790mm Granular Base / Sub-base																															
			198.33																														
		Sand, With Gravel	198.21																														
		End of Borehole																															
		1																							Bedrock Refusal @ 0.914m								
		2																															
		3																															
		4																															

Drilled By: CMT Engineering

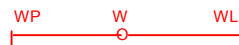
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH108

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE						Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)		Water Content Data (%)	Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Drilled By: CMT Engineering

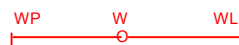
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1



Borehole Log: BH109

Project No: 15-1068

Project: West Road Geotechnical Investigation



Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE					SAMPLE														Remarks																			
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)					Grain Size (%)														
																								Grain Size (%)														
									Standard Penetration Resistance Blows / 0.3m										Gr				Sa				Si				Cl							
									25	50	75	100	125	150	175	200	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80					
		0	Geodetic Ground Elevation	194.24																																		
			770mm Granular Base / Sub-base	193.47																																		
		1	Sand, With Gravel & Fractured Rock, Trace Clay, Dense, Brown, Moist	192.87																																		
			End of Borehole																																			
			2																																			
		3																																				
		4																																				

Drilled By: CMT Engineering

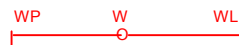
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
 SS - Spilt Spoon
 TWS - Thin Walled Shelby Tube
 BS - Block Sample
 NQ - Rock Core
 W - Water Content
 WL - Liquid Limit
 WP - Plastic Content
 +s Field Vane, S - Sensitivity
 - Lab Vane

w - Wash
 SPT (Standard Penetration Test)
 DCPT (Dynamic Cone Penetration)
 WH - Weight Of Hammer



Datum:

Location:

Sheet: 1 of 1

Project No: 15-1068

Project: West Road Geotechnical Investigation

Site Location: West Road

Client: Bruce County

Logged By: S.deBortoli

Compiled By: D.A.Mousseau

Reviewed By: J.Black

SUBSURFACE PROFILE				SAMPLE														Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Well	Strata Plot (m)	Depth (m)	DESCRIPTION	Elevation (m)	Sample Number	Sample Type	Recovery (%)	Blows / 0.3m	Undrained Shear Strength (Cu, kPa)										Water Content Data (%)				Grain Size (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Drilled By: CMT Engineering

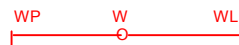
Drill Method: Split Spoon / Casing

Drill Date: July 3, 2015

Sample Type

AS - Auger Sample
SS - Spilt Spoon
TWS - Thin Walled Shelby Tube
BS - Block Sample
NQ - Rock Core
W - Water Content
WL - Liquid Limit
WP - Plastic Content
+s Field Vane, S - Sensitivity
- Lab Vane

w - Wash
○ - SPT(Standard Penetration Test)
○ - DCPT (Dynamic Cone Penetration)
WH - Weight Of Hammer



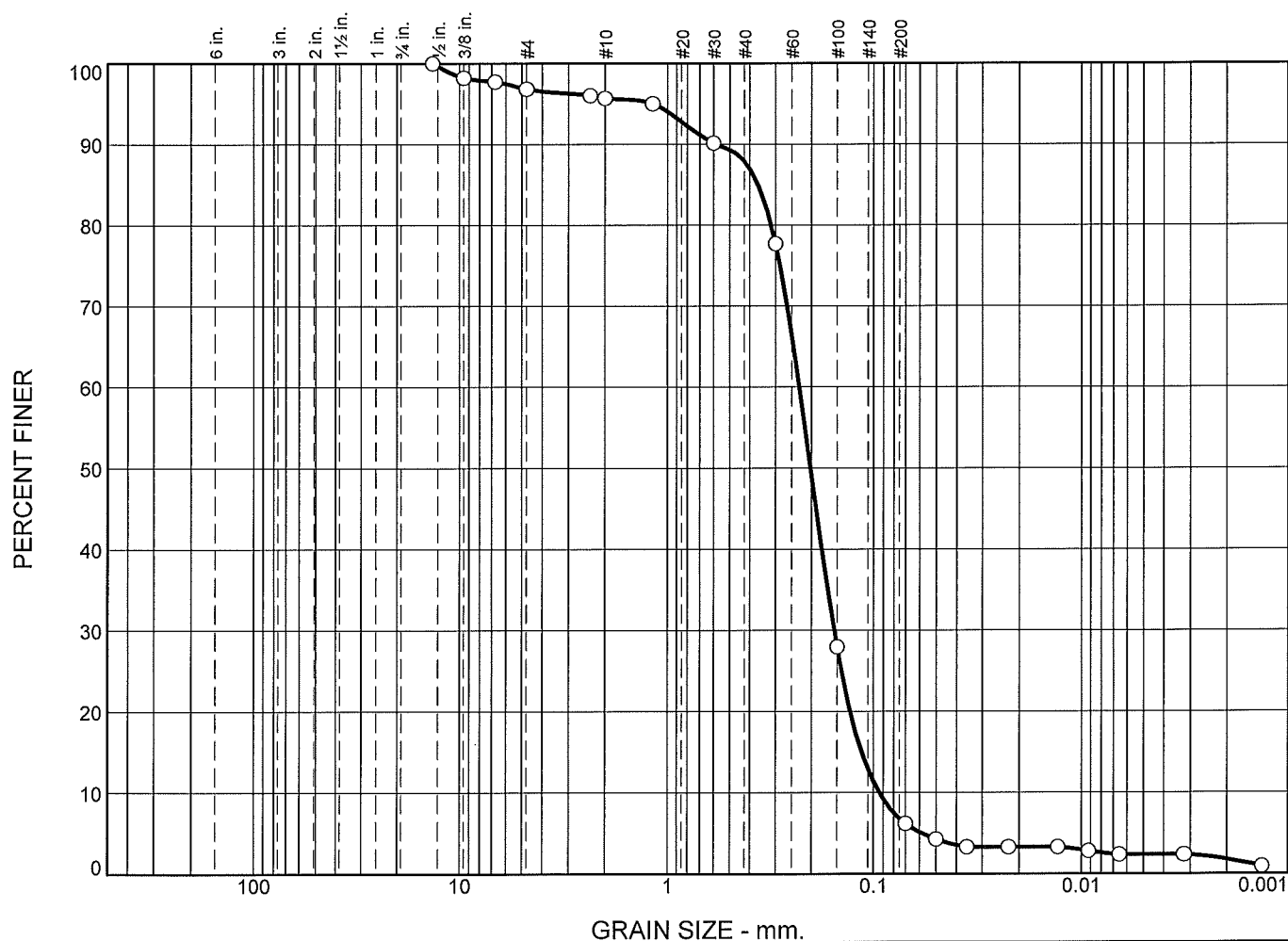
Datum:

Location:

Sheet: 1 of 1

Appendix D Laboratory Results

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.2	1.1	7.8	81.1	5.0	1.8

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH4	1	0.9-1.5m	sand, some silt, trace gravel and clay	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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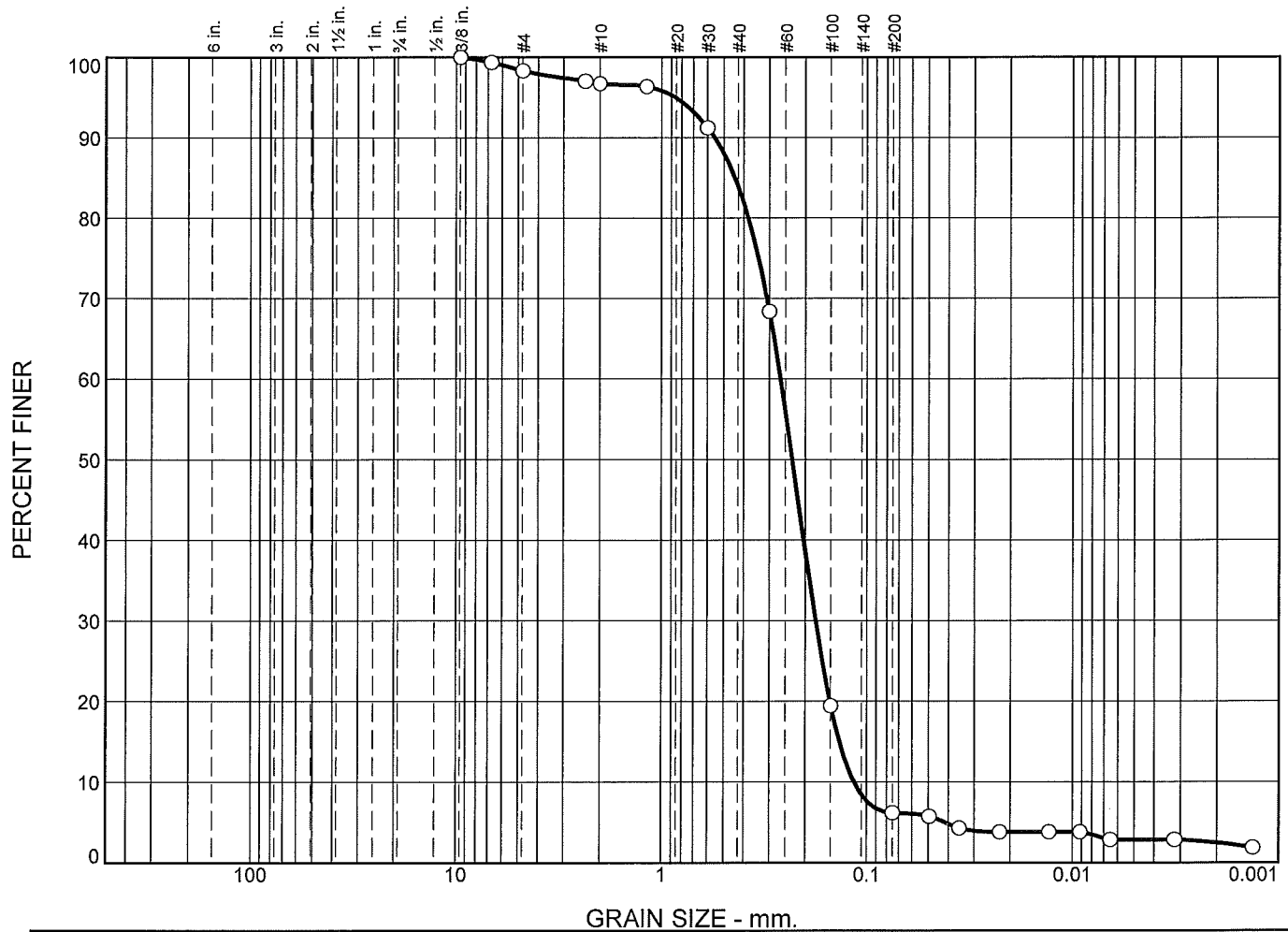
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 1

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.7	1.6	12.8	77.7	3.7	2.5

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH9	2	2.4-3.1m	sand, trace silt, clay, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

CMT Engineering Inc.

St. Clements, ON

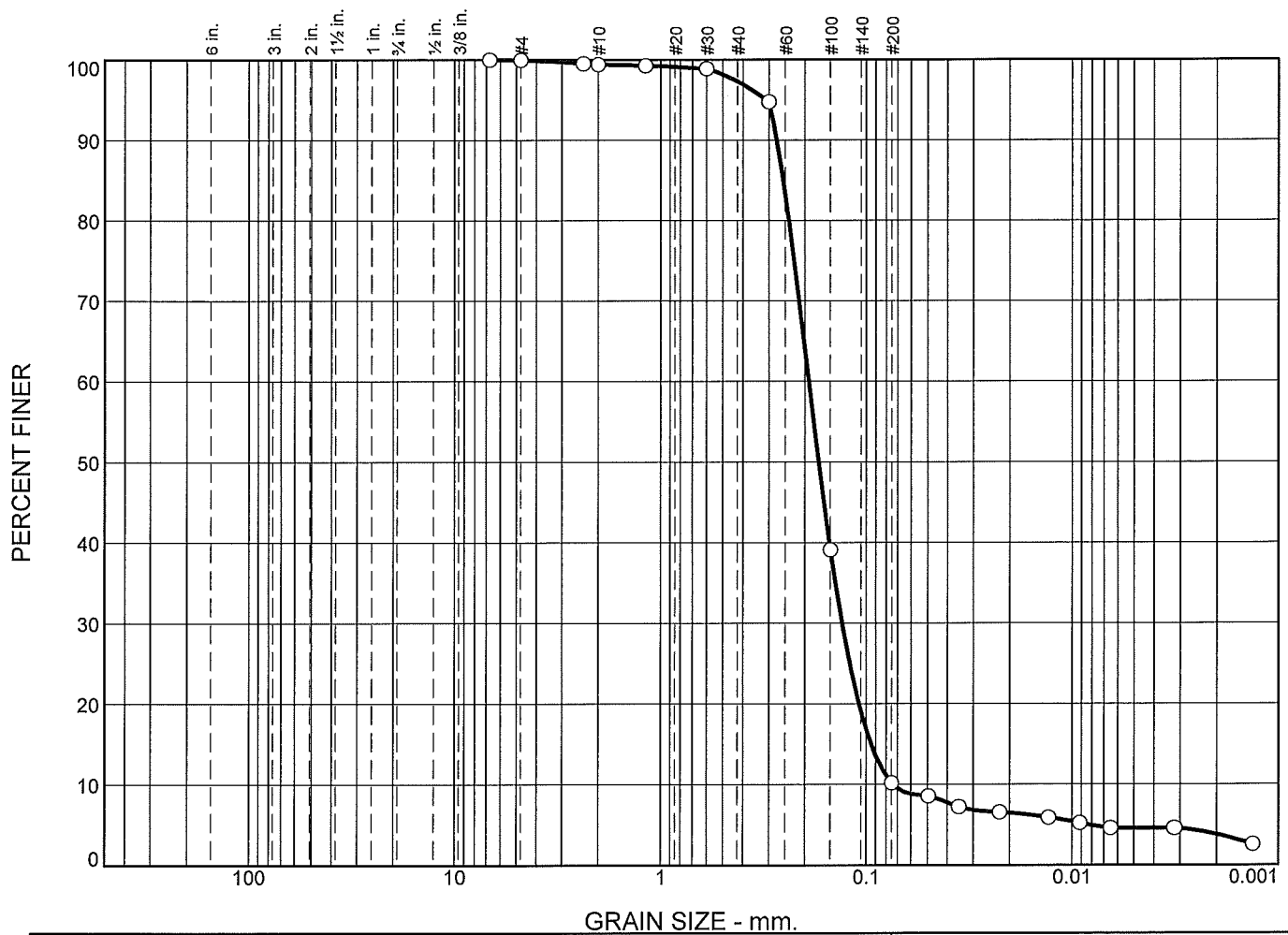
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 2

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.5	2.1	87.1	6.4	3.8

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH15	1	0.9-1.5m	sand, trace silt, clay, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

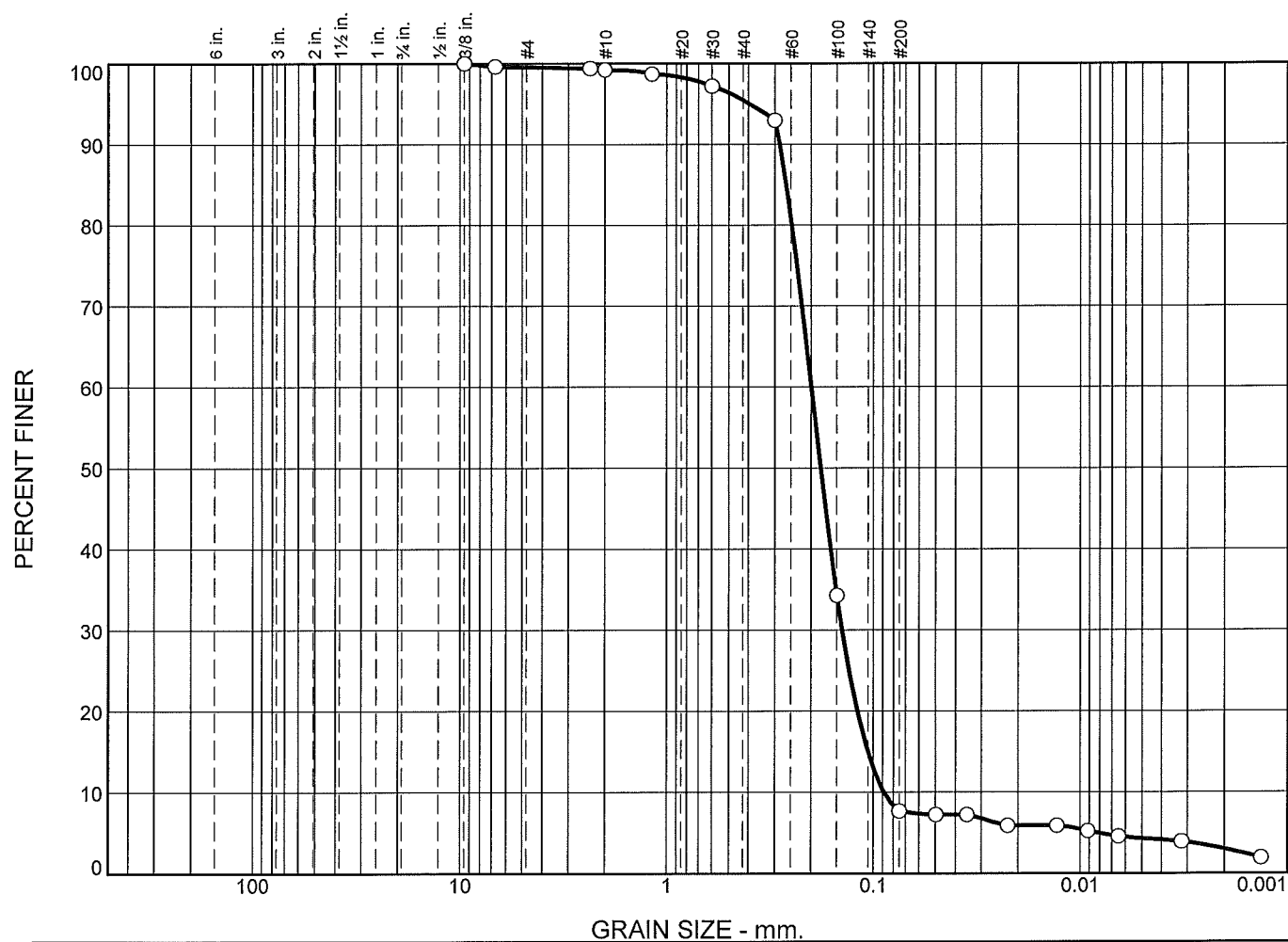
CMT Engineering Inc.

St. Clements, ON

Client: Tulloch Engineering
Project: Bruce County Roads
 (15-1068)
Project No.: 15-307

Figure 3

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○ 0.0	0.0	0.5	0.3	3.7	87.8	4.7	3.0

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH18	2	2.4-3.1m	sand, trace silt, clay, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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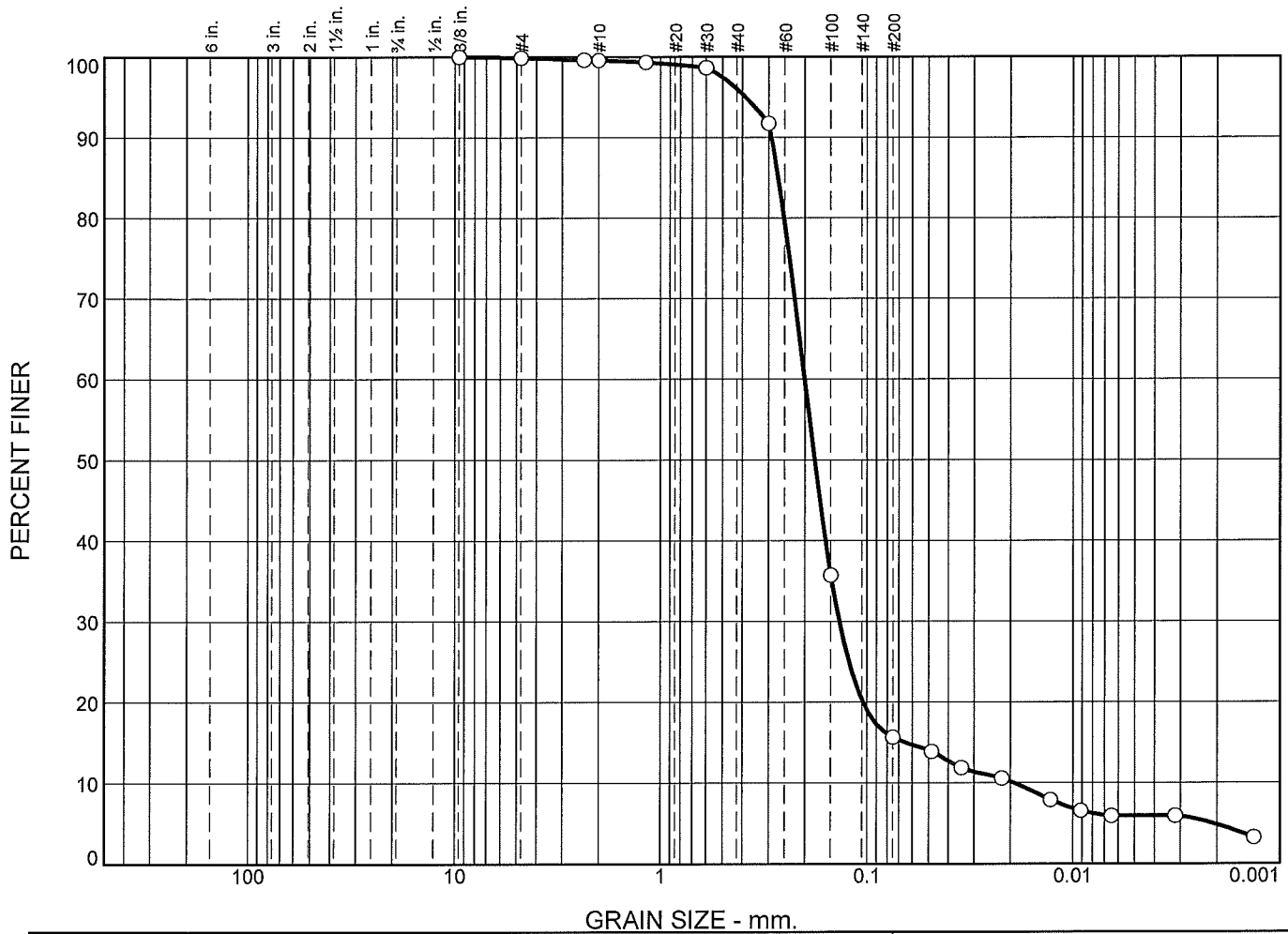
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 4

Particle Size Distribution Report



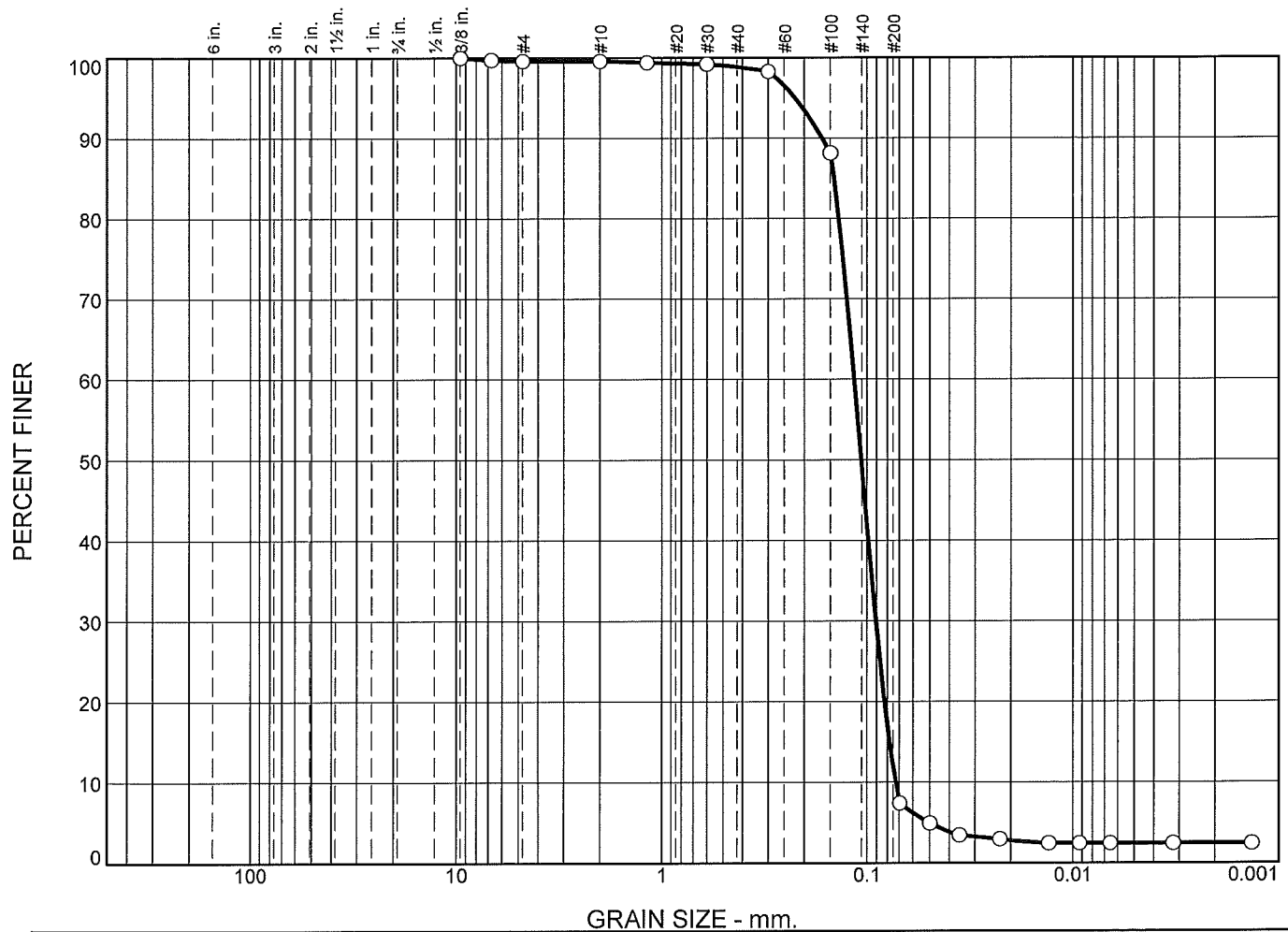
	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.3	3.6	80.3	10.9	4.8

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH20	1	0.9-1.5m	sand, some silt, trace clay and gravel	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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Project: Bruce County Roads
(15-1068)
Project No.: 15-307

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.4	0.0	0.8	87.0	9.4	2.4

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH27	2	2.4-3.1m	sand, trace clay, silt, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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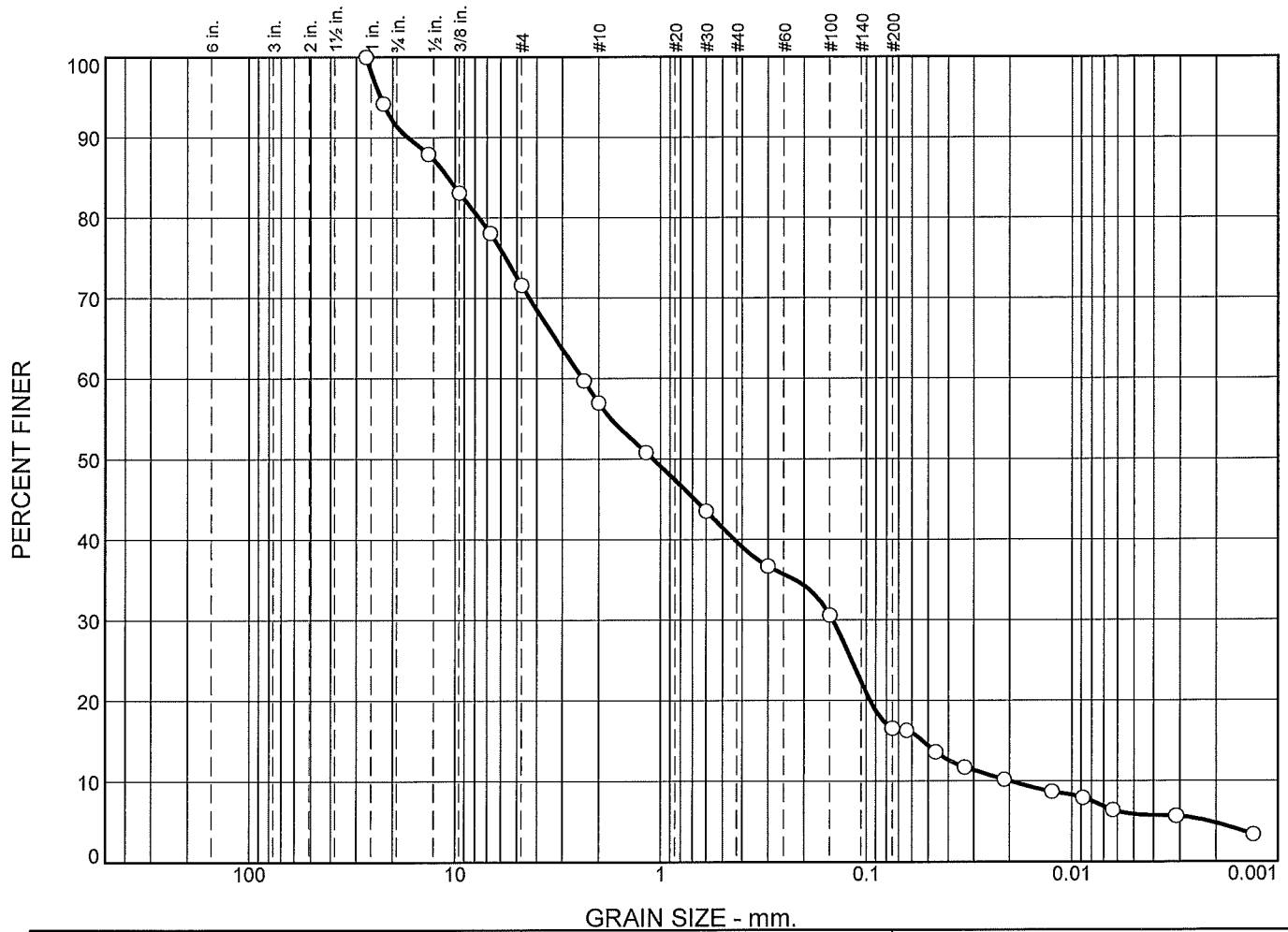
Client: Tulloch Engineering

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Project No.: 15-307

Figure 6

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	8.7	19.7	14.6	17.3	23.1	11.8	4.8

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH35	1	0-0.9m	gravelly sand, some silt, trace clay	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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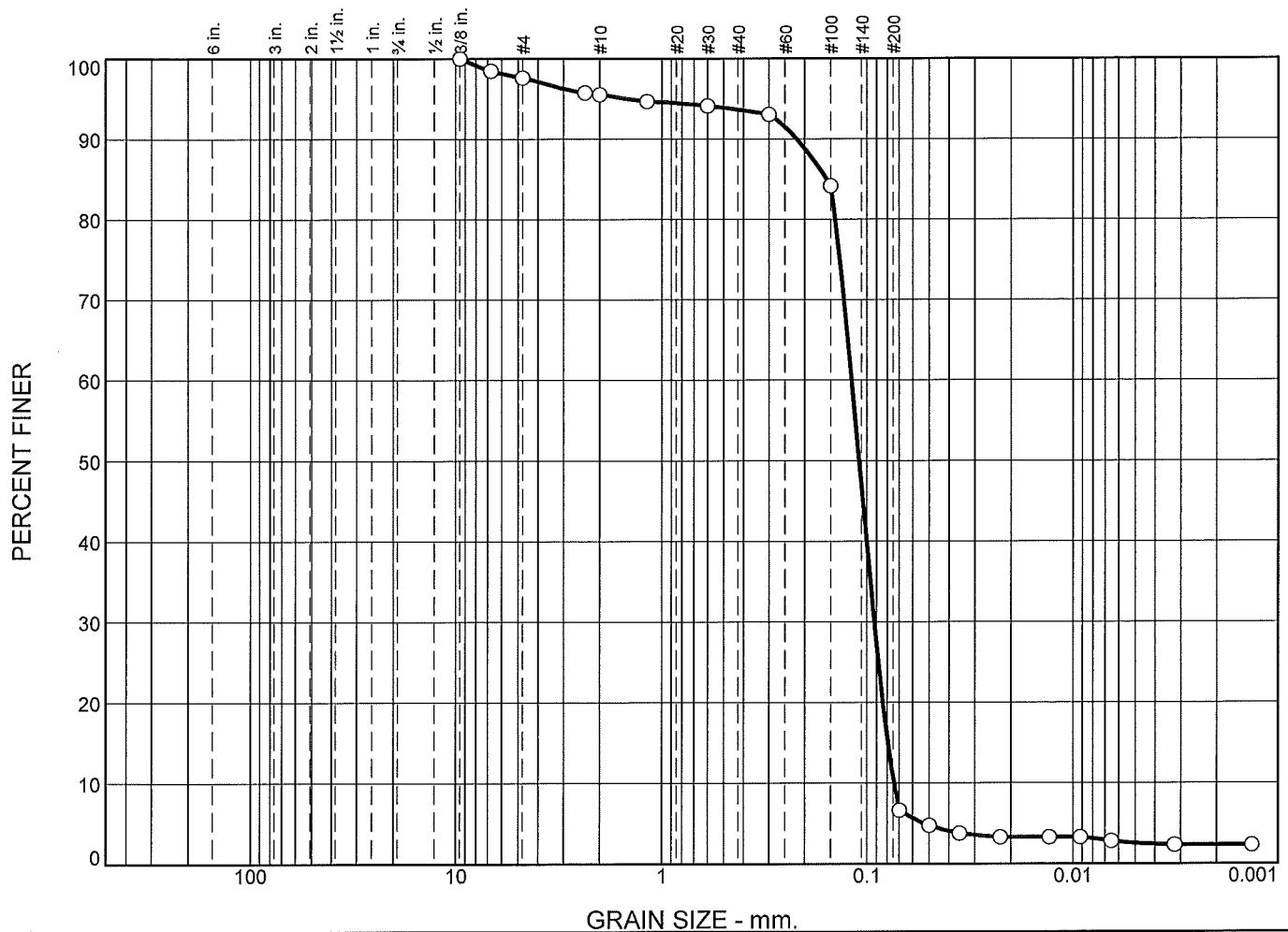
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(15-1068)

Project No.: 15-307

Figure 7

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.4	2.1	1.9	82.9	8.4	2.3

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH42	1	0.9-1.5m	sand, trace silt, gravel, and clay	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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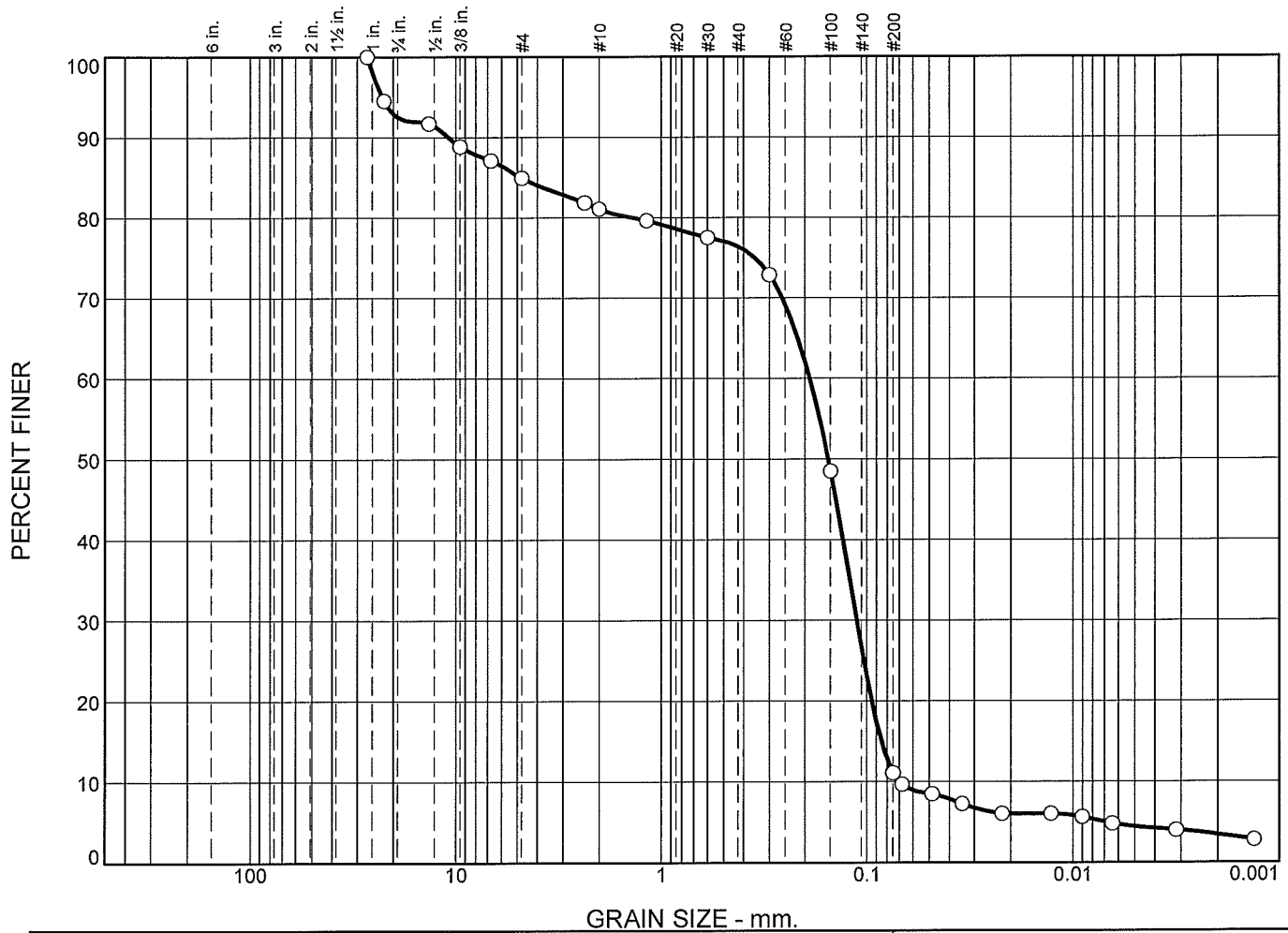
Client: Tulloch Engineering

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(15-1068)

Project No.: 15-307

Figure 8

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	7.5	7.6	3.8	4.7	65.3	7.7	3.4

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH44	1	0-0.9m	sand, some gravel, trace silt and clay	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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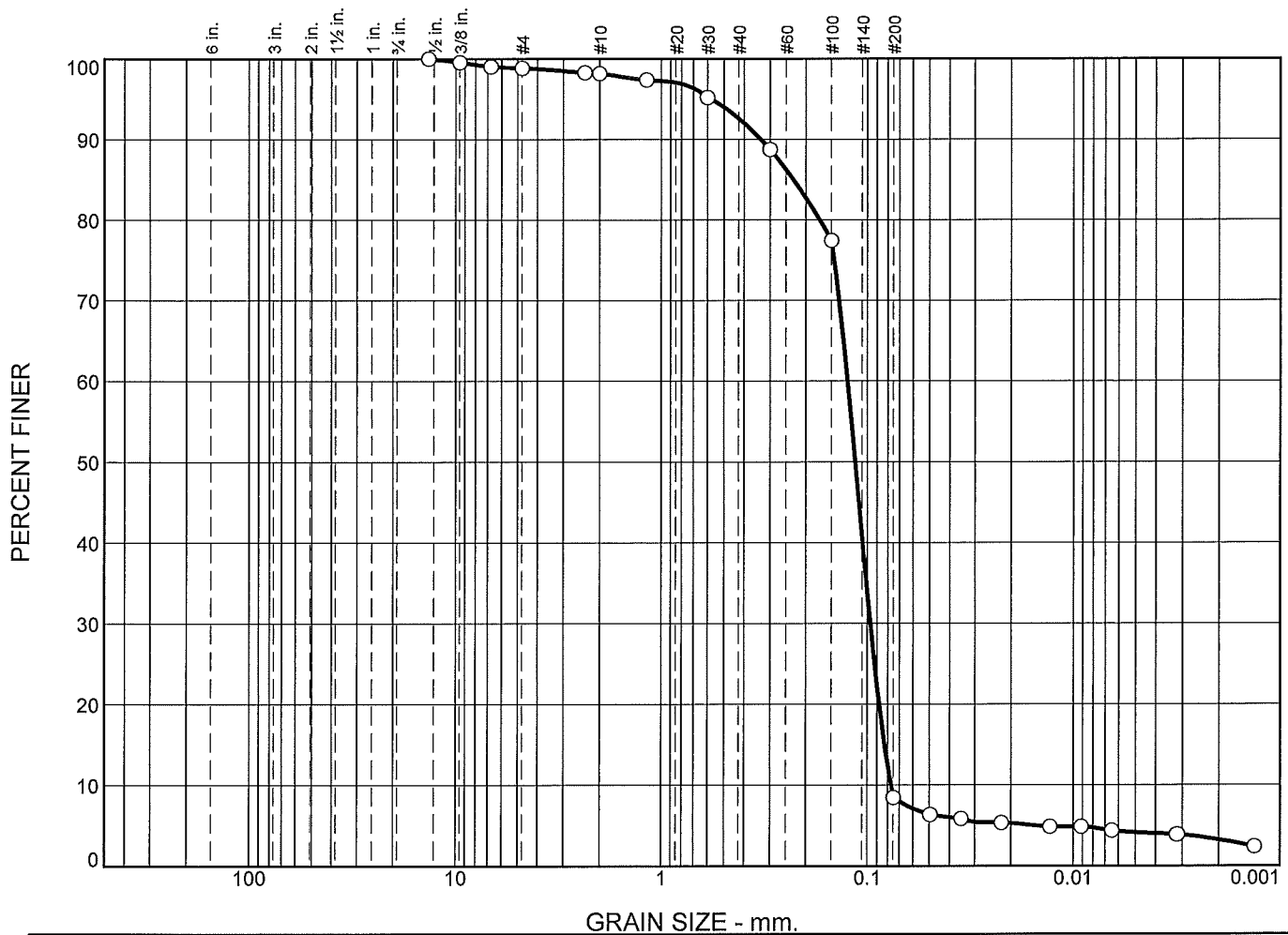
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 9

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.1	0.7	5.6	84.2	5.2	3.2

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH49	2	2.4-3.1m	sand, trace silt, clay, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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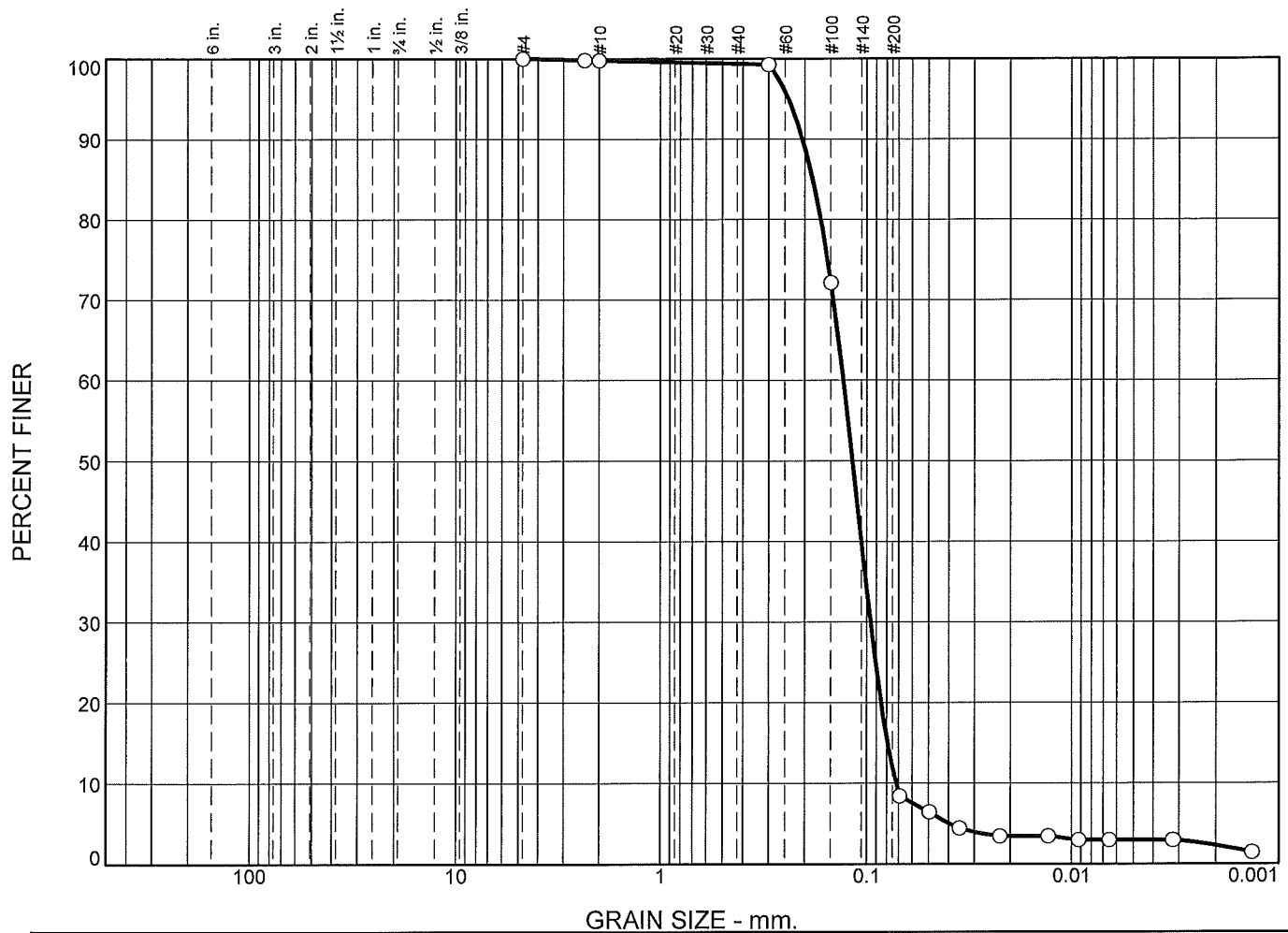
Client: Tulloch Engineering

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(15-1068)

Project No.: 15-307

Figure 10

Particle Size Distribution Report



GRAIN SIZE - mm.

	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	0.4	87.5	9.6	2.3

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH52	1	0.9-1.5m	sand, trace silt and clay	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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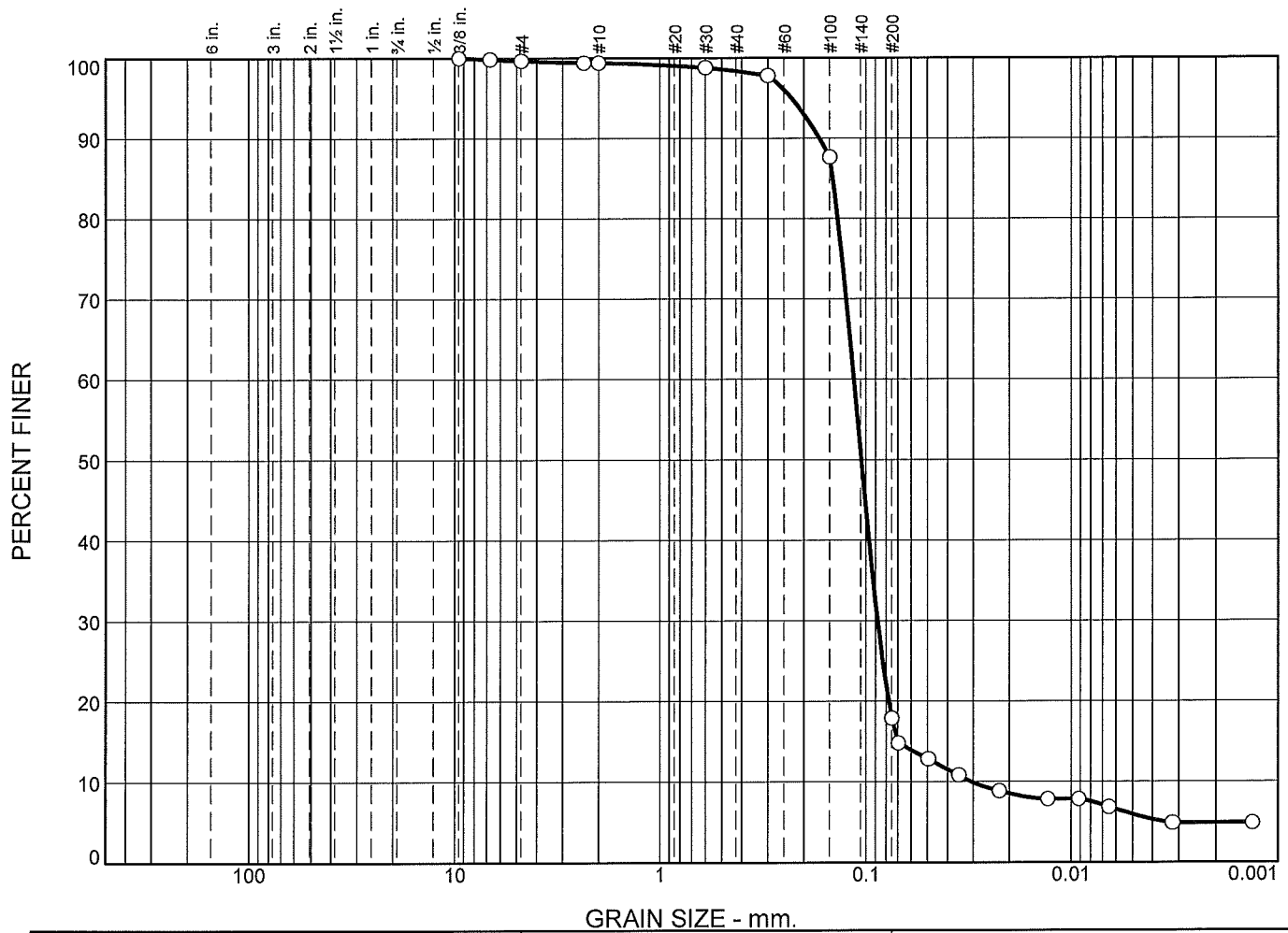
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 11

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.3	0.3	1.0	80.5	13.0	4.9

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH56	2	2.4-3.1m	sand, some silt, trace clay and gravel	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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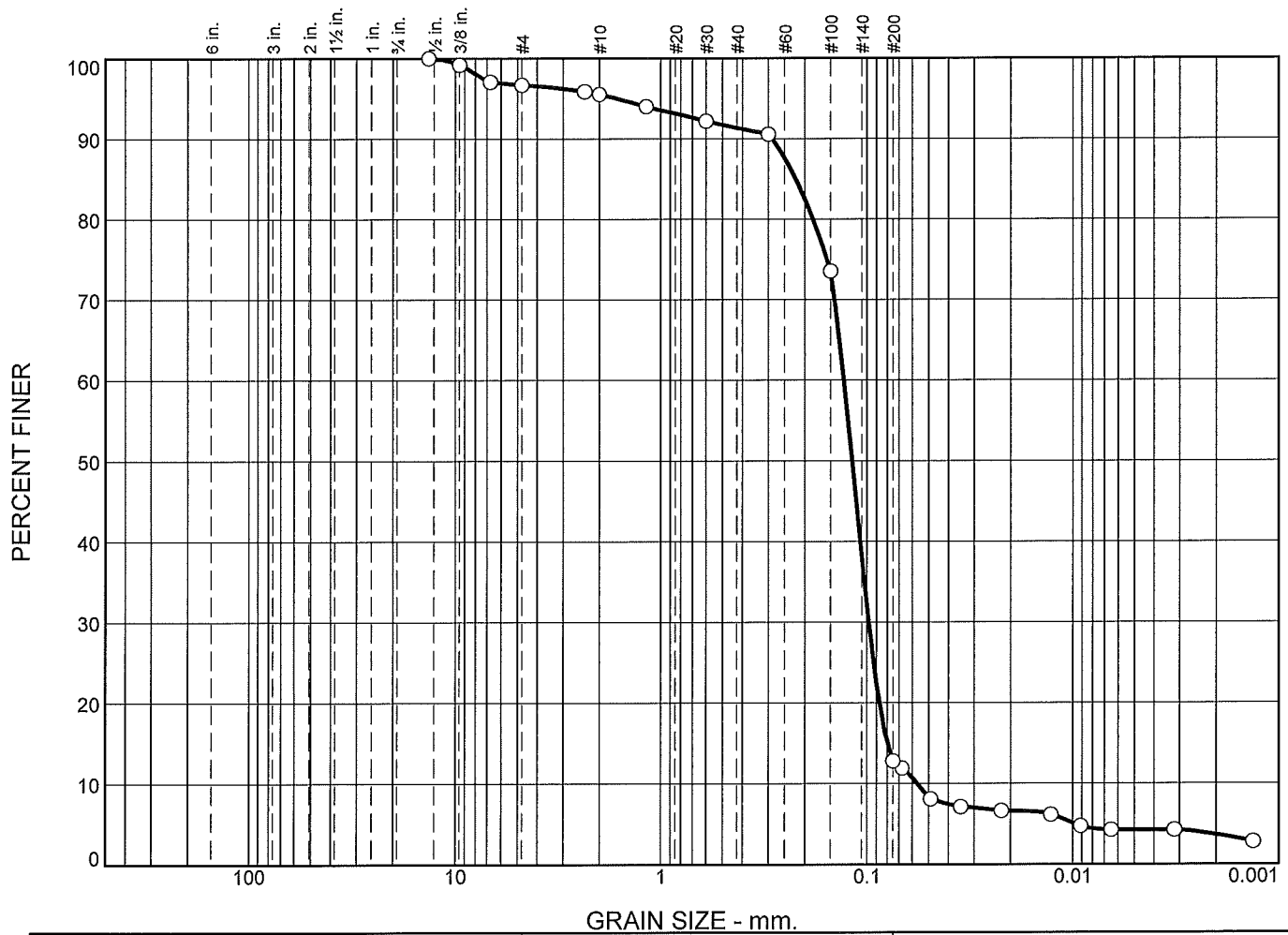
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 12

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.3	1.2	4.2	78.5	9.1	3.7

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH58	1	0.9-1.5m	sand, trace silt, clay, and gravel	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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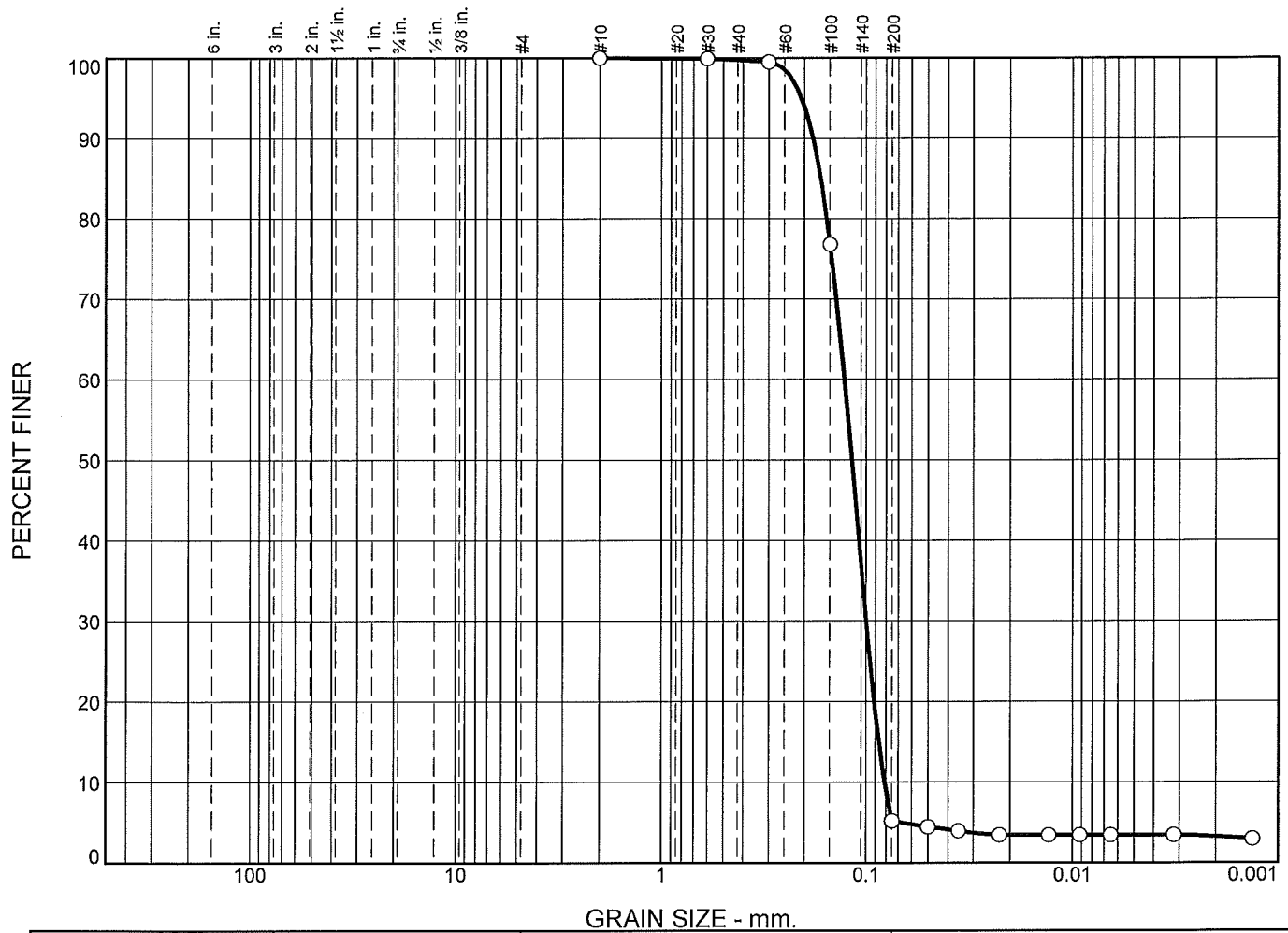
Client: Tulloch Engineering

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(15-1068)

Project No.: 15-307

Figure 13

Particle Size Distribution Report

[illegible]

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH61	2	2.4-3.1m	sand, trace clay and silt	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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(15-1068)

Project No.: 15-307

Figure 14

Particle Size Distribution Report



GRAIN SIZE - mm.								
	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	7.2	5.6	6.1	65.5	12.3	3.3

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH63	1	0.9-1.5m	sand, some silt, trace gravel and clay	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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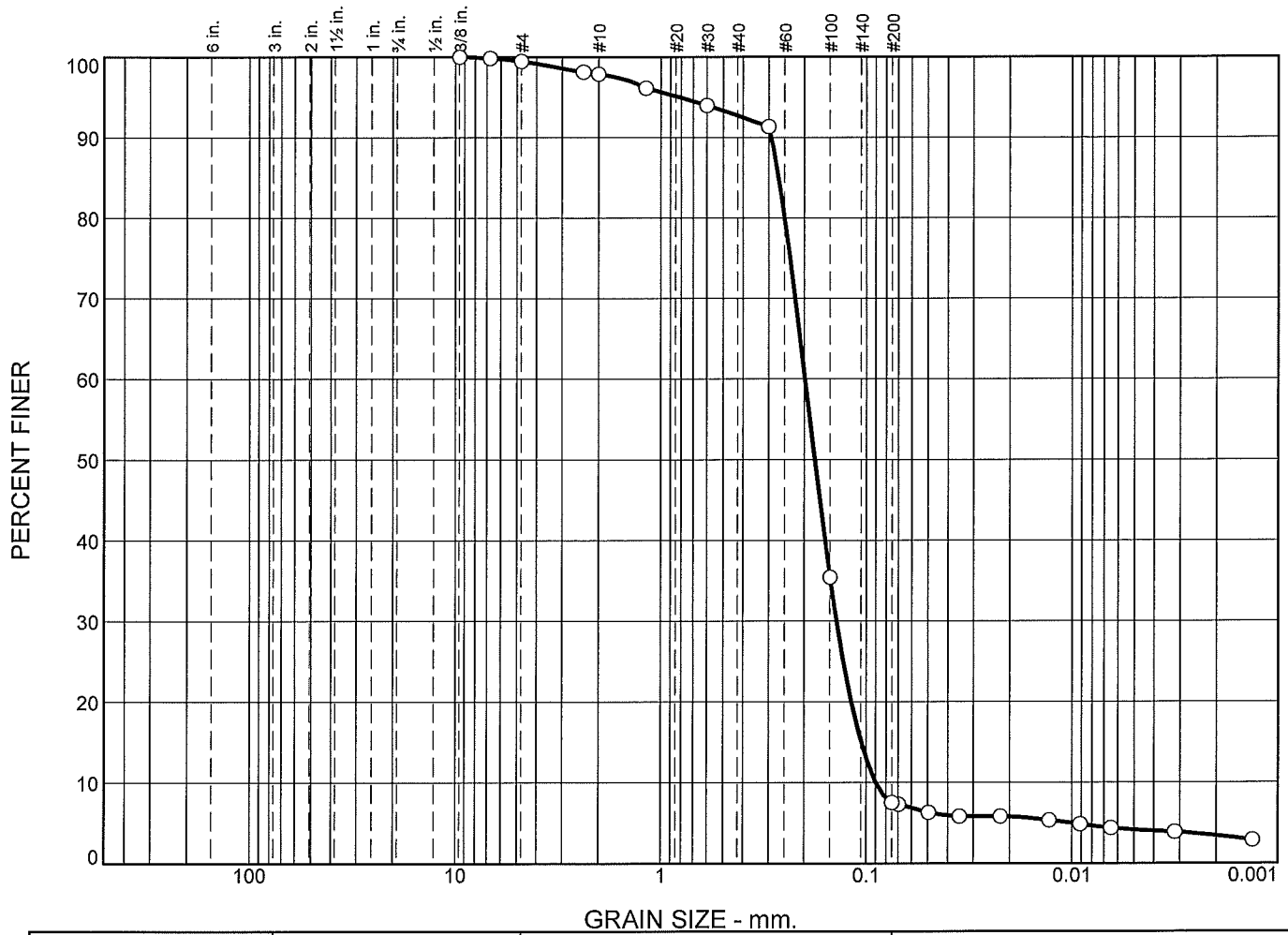
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 15

Particle Size Distribution Report



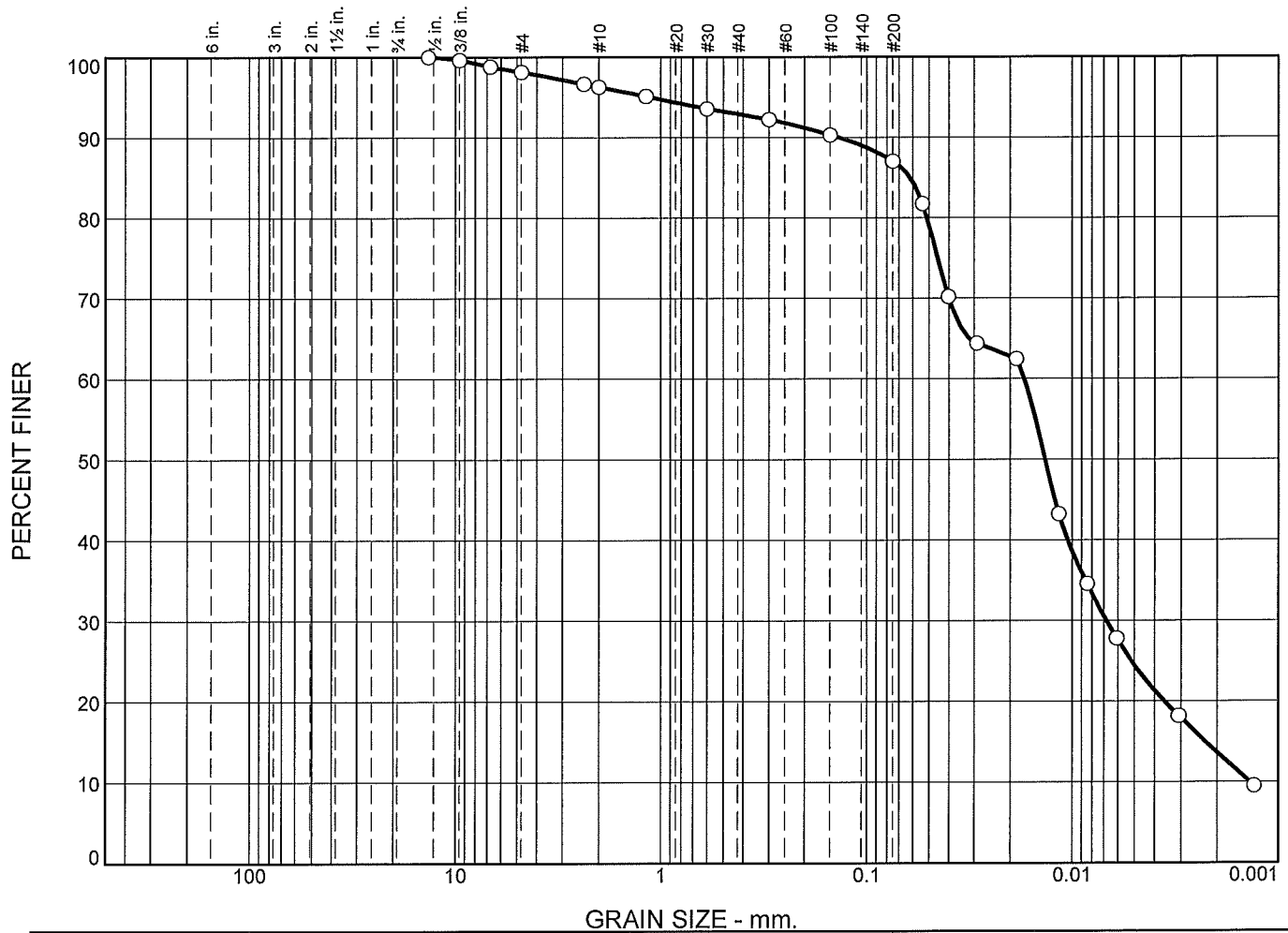
	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	1.6	5.2	85.2	4.1	3.4

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH66	1	0.9-1.5m	sand, trace silt, clay, and gravel	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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Project: Bruce County Roads
(15-1068)
Project No.: 15-307

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.9	1.8	3.4	5.9	73.3	13.7

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH70	2	2.4-3.1m	silt, some clay and sand, trace gravel	ML
				Tested by JH of CMT Engineering Inc. July 17, 2015	

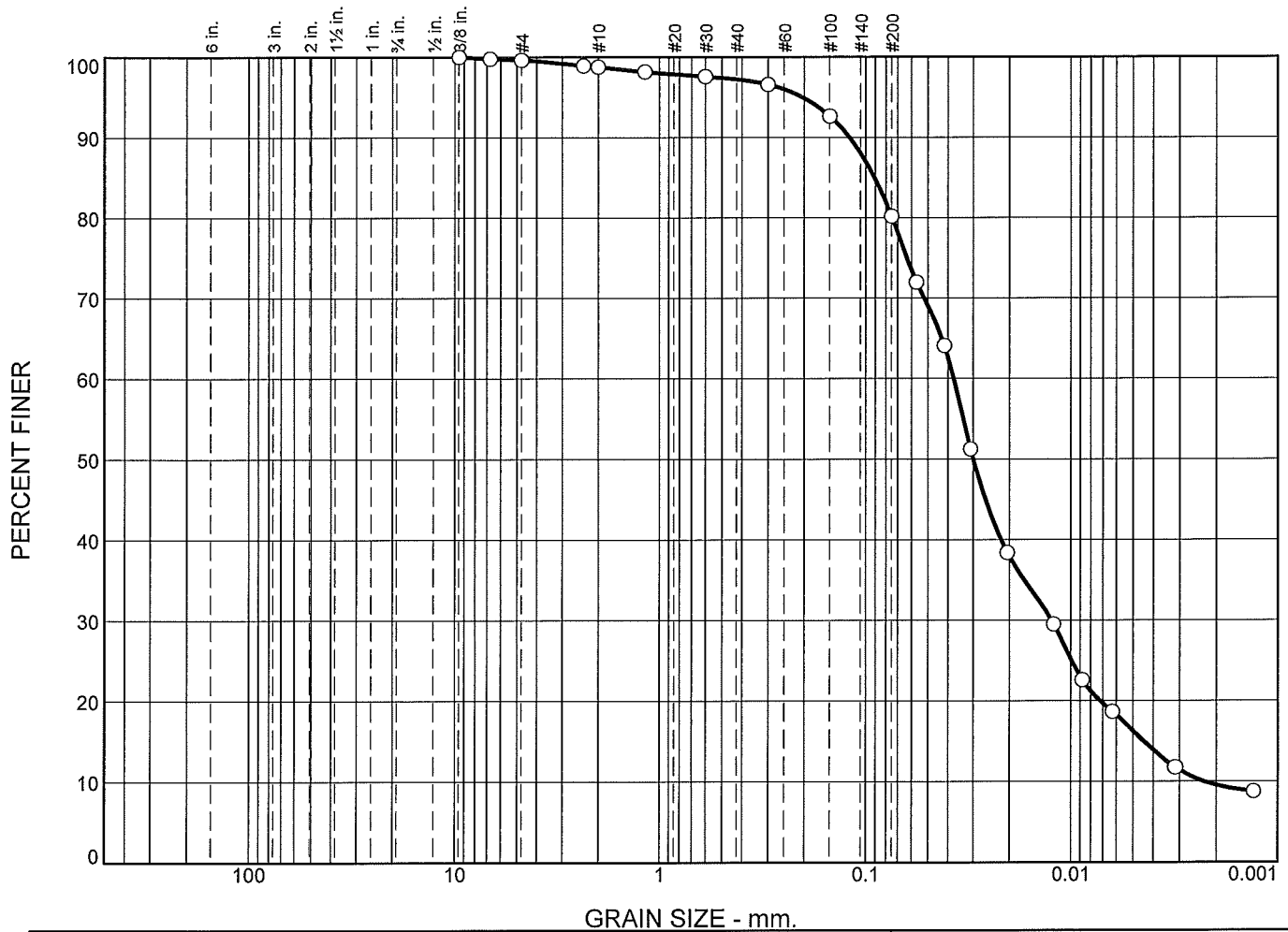
CMT Engineering Inc.

St. Clements, ON

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Project: Bruce County Roads
 (15-1068)
Project No.: 15-307

Figure 17

Particle Size Distribution Report



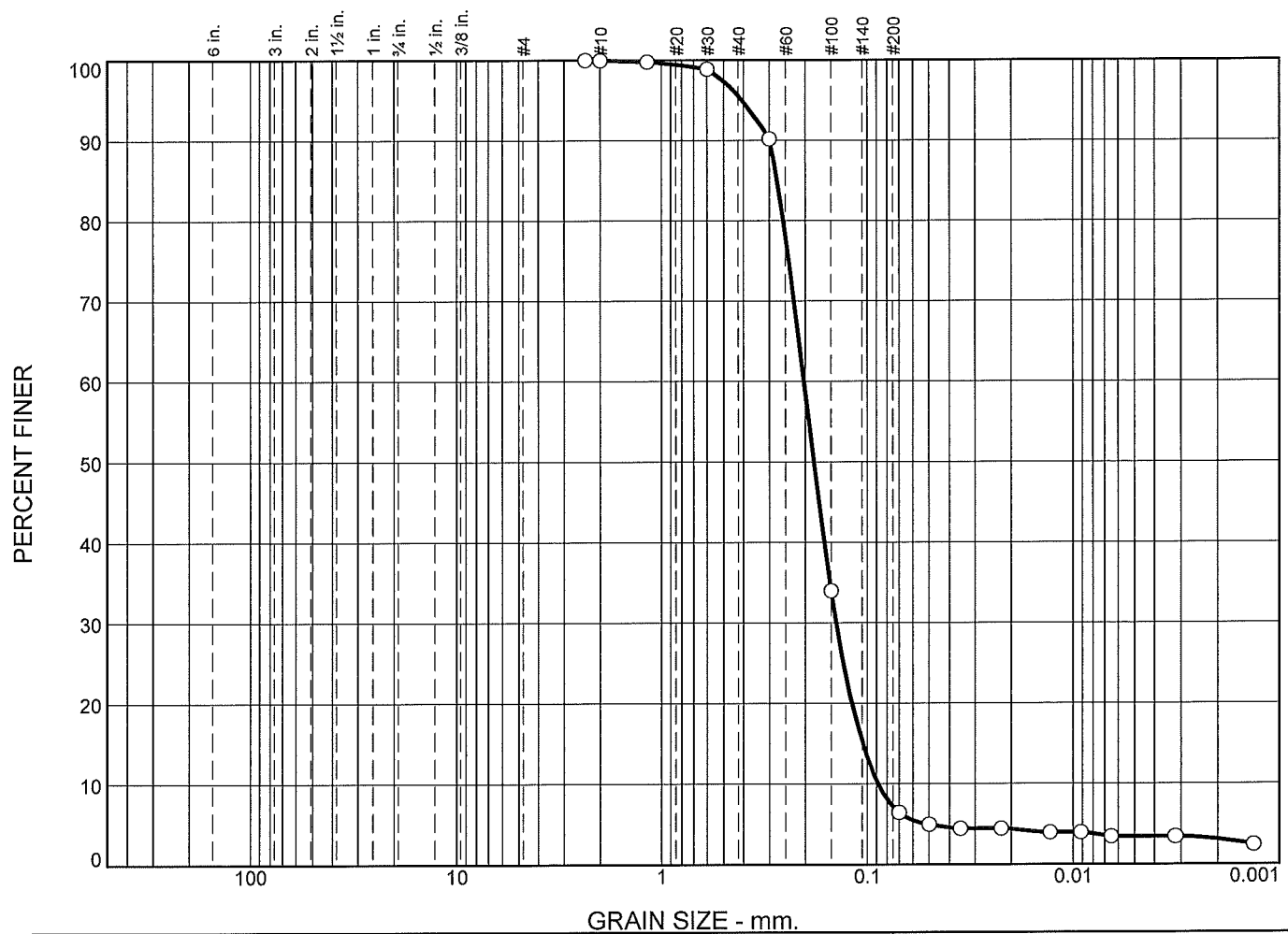
	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.4	0.9	1.5	17.0	70.7	9.5

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH71	1	0.9-1.5m	silt, some sand, trace clay and gravel	ML
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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Project: Bruce County Roads
(15-1068)
Project No.: 15-307

Particle Size Distribution Report



GRAIN SIZE - mm.								
	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	4.5	88.3	4.1	3.1

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH96	3	3.1-3.7m	sand, trace clay and silt	SP-SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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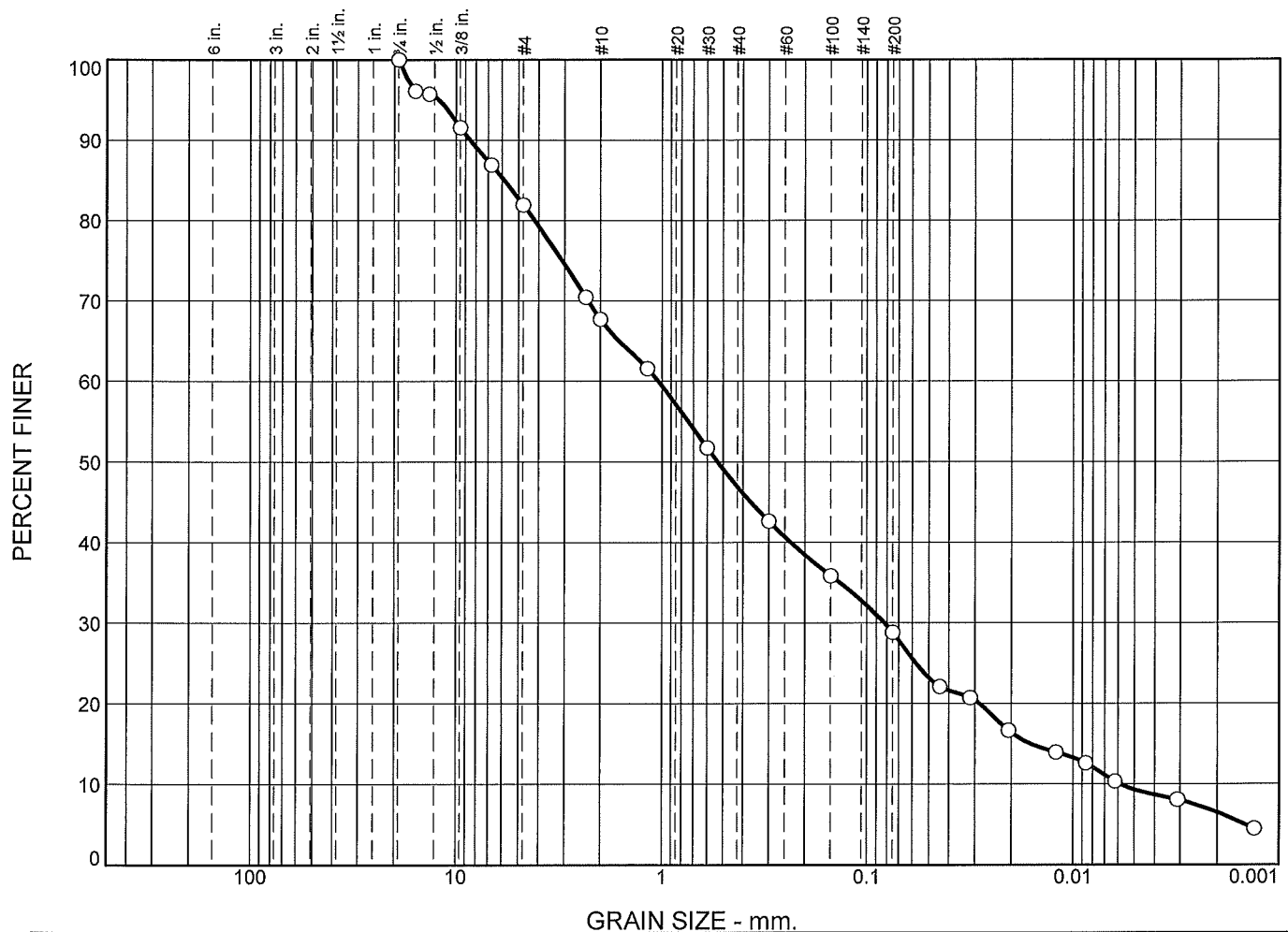
Client: Tulloch Engineering

Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 19

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	18.1	14.2	20.8	18.1	22.3	6.5

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH107	1	0-0.9m	silty sand, some gravel, trace clay	SM
				Tested by JH of CMT Engineering Inc. July 17, 2015	

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Project: Bruce County Roads
(15-1068)

Project No.: 15-307

Figure 20

Appendix E Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND GUIDELINES FOR USE

This information has been provided to help manage risks with respect to the use of this report.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This geotechnical report has been prepared for the exclusive use of the client, their authorized agents, and other members of the design team. It is not intended for use by others, and the information contained herein is not applicable to other sites, or for purposes other than those specified in the report.

Tulloch Engineering (Tulloch) cannot be held responsible for reliance on the information contained in this report, by persons other than the client or 'authorized' agent without prior written approval.

SUBSURFACE CONDITIONS CAN CHANGE

This geotechnical investigation report is based on existing conditions at the time the study was performed, and our opinion of soil conditions are strictly based on soil samples collected at specific borehole locations. The findings and conclusions of our reports may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, and slope instability or groundwater fluctuations.

LIMITATIONS TO PROFESSIONAL OPINIONS

Interpretations of subsurface conditions are based on field observations from boreholes and/or test pits that were spaced to capture a 'representative' snap shot of subsurface conditions. Site exploration identifies subsurface conditions only at points of sampling. Tulloch reviews field and laboratory data and then applies our professional judgment to formulate an opinion of subsurface conditions throughout the site. Actual subsurface conditions may differ, between sampling locations, from those indicated in this report.

LIMITATIONS OF RECOMMENDATIONS

Subsurface soil conditions should be verified by a qualified Tulloch representative during construction. Tulloch should be notified if any discrepancies to this report or unusual conditions are found during construction.

Sufficient monitoring, testing and consultation should be provided by Tulloch during construction and/or excavation activities, to confirm that the conditions encountered are consistent with those indicated by the borehole and/or test pit investigation, and to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated. In addition, monitoring, testing and consultation by Tulloch should be completed to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining Tulloch for construction observation for this project is the most effective method of

managing the risks associated with unanticipated conditions. However, please be advised that any construction/excavation observations by Tulloch is over and above the mandate of this geotechnical investigation and therefore, additional fees would apply.

MISINTERPRETATION OF GEOTECHNICAL ENGINEERING REPORT

Misinterpretation of our report by other design team members can result in costly problems. You could lower that risk by having Tulloch confer with appropriate members of the design team after submitting the report. Also retain Tulloch to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having Tulloch participate in pre-bid and preconstruction conferences, and by providing construction observation. Please be advised that retaining Tulloch to participation in any 'other' activities associated with this project is over and above the mandate of this geotechnical investigation and therefore, additional fees would apply.

CONTRACTORS RESPONSIBILITY FOR SITE SAFETY

This geotechnical report is not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties. It is ultimately the contractor's responsibility that the Ontario Occupational Health and Safety Act is adhered to, and site conditions satisfy all 'other' acts, regulations and/or legislation that may be mandated by federal, provincial and/or municipal authorities.

SUBSURFACE SOIL AND/OR GROUNDWATER CONTAMINATION

This report is geotechnical in nature and specifically excludes the investigation, detection, prevention or assessment of the presence of subsurface contaminants. Accordingly, the scope of services does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of contaminants, and no conclusions or inferences should be drawn regarding contamination, as they may relate to this project. The term "contamination" includes, but is not limited to, molds, fungi, spores, bacteria, viruses, PCBs, petroleum hydrocarbons, inorganics, pesticides/insecticides, volatile organic compounds, polycyclic aromatic hydrocarbons and/or any of their byproducts.